Cross-Cultural Investigation of Children's Awareness and Perception of Stuttering

by

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Dedication

I would like to dedicate this thesis to my family. They have been my support system and foundation during not only the graduate school process, but also my life in its entirety. To my parents, Reina and Roberto, thank you for continually believing me and encouraging me to always pursue my dreams. I know that any of my successes in this life are in large part also yours. To my brothers, Carlos and Rigo, I am extremely proud of being your big sister. I hope that I can continue to set a good example and encourage you to strive to do your best.

Abstract

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Stuttering is a universal phenomenon that has been identified in ethnic and cultural groups around the world. While it has been suggested that attitudes toward stuttering are different for various cultural groups, knowledge of, and attitudes toward stuttering have not been studied extensively across cultures. The purpose of the present study was twofold: (1) to investigate the awareness and perception of stuttering for American children age 3 to 7 from diverse cultures, and (2) to compare those to findings of awareness and perception of stuttering for children from Israel and America. Sixteen

children in four different age groups were asked to complete three different types of experimental tasks after watching a video of fluent and disfluent identical seal puppets. The participant's awareness of disfluency was assessed through discrimination between fluent and disfluent speech and identification of the puppet who spoke like them. Perception was addressed through labeling and evaluation of fluent and disfluent speech. Results revealed that at as young as age 3 some children began to demonstrate accurate awareness of disfluent speech. However, the highest level of accuracy was not demonstrated in the majority of participants until age 7. In addition, results further revealed across all age groups that children were more accurate when discriminating between fluent and disfluent speech than identifying it. Similarities and differences between previous studies that have used the same experimental stimuli (i.e., Ambrose & Yairi, 1994; Ezrati-Vinacour et al., 2001) are discussed. The lack of diverse cultural participants and its resulting effects on the present study's recruitment methodologies are also discussed.

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CULTURE AS A VARIABLE: AN INTRODUCTION

A variable that is in particular need of theoretical and empirical consideration is that of awareness and perception of stuttering in individuals who do not stutter from diverse cultures. Awareness is typically discussed in terms of the age at which children become aware of stuttered speech as being different from fluent speech. Children who do not stutter have been found to be aware of stuttering like disfluencies as early as age three (Ambrose & Yairi, 1994; Ezrati-Vinacour, Platzky, & Yairi, 2001). Negative perceptions and personality traits have been attributed to people who stutter by a variety of individuals and groups including, speech clinicians (Turnbaugh, Guitar, & Hoffman, 1979; Yairi & Williams, 1970; Cooper & Cooper, 1996), pediatricians (Yairi & Carrico, 1992), parents (Crowe & Cooper, 1977), teachers (Crowe & Walton, 1981), university professors (Dorsey & Guenther, 2000), university students (Betz, Blood, & Blood, 2008), and classmates (Davis, Howell, & Cooke, 2002). However, little research has examined whether culture differentially influences children's perceptions of individuals who stutter and how such perceptions are influenced by their awareness of stuttered speech.

As Edward T. Hall (1959) once described, culture and communication are inextricably linked. In this sense, speech, language and even communication itself is embedded in culture. Culture is also a system of knowledge that allows people of a cultural group to understand how to communicate with one another. This relationship between communication and culture is reciprocal, in that both can affect and influence each other (Keesling, 1974). The embedded nature of communication makes it logical to assume that one could not study communication or communication disorders without taking into account the societal, historical or cultural basis for the communication styles of an ethnic or cultural group. The determination of a communication disorder within a particular cultural group is often the result of the group's cultural values, perceptions, and attitudes, as well as their history. Often members of a particular ethnic or cultural group will use these factors to determine the communication competence of persons within the cultural group. Prior to exploring how culture can potentially affect the development of awareness and perceptions, it is necessary to understand the history and role of culture in our country.

AMERICAN MULTICULTURAL HISTORY

Development and Prevalence of Cultural Groups

One may ask, why consider examining America's multicultural history while looking at the thoughts and perceptions of a specific communication disorder? However, as our history has shown us, most Americans are immigrants or the descendants of immigrants, and immigration to this country has been a long continuous process. As a result, the US does not contain a homogenous population. The quickly changing

landscape indicates that considering and understanding cultural influences has become increasingly more important when completing empirical investigations. . In addition, examining the development of cultural diversity may also help facilitate understanding that generalizations based on the beliefs of a select group of American participants may not be representative of all persons in this country.

The US is a multicultural society, and even from the beginning, this country has had a unique ethnic mosaic. As early as 1500, the more than 4.5 million Native American inhabitants were already divided into hundreds of tribes, each with distinctive cultures, religions, and languages (Vecoli, 1995). When the first census was taken in 1790, the US was already considered to be a country of many cultures, with nearly 32% the census population being from distinct ethnic subpopulations. Over the course of the continued development of this country, there have been waves of immigration, with the first beginning in 1841 and the last ending in the 1990s. Each wave of immigration has brought an influx of immigrants from different countries and initially these were compromised primarily of Europeans. However, the first wave of immigration also saw its first major surge in immigration from Asia, in the form of Chinese immigrants. The second wave of immigration came during the industrial revolution, while Europe was experiencing extreme poverty and political turmoil. This wave included an additional immigration of 18 million more Europeans, and, as a result, further changed the American landscape. In specific, immigrants from Sweden and Norway settled primarily in the Midwest, creating unique ethnic identities in each of these states. The third wave of immigration differed significantly from the previous waves because the countries of

origin changed dramatically. The first two waves saw 90% of immigrants of European origin; however, during the 1980s, 85% were from Asian and Latin American countries, with Mexico and China having the largest number of immigrants (Battle, 2002). This new wave of immigrants was also reflected in the 2000 US Census. The total US population grew by 13.2% from 1990 to 2000. However, the growth of the Caucasian population over this decade only increased by 3.4%, while the populations of ethnic/minority groups increased 15.6% to 57.9%.

US Cultural Growth and Children

Currently, first and second-generation immigrant children are the fastest growing segment of the population, and based on estimates by Fix and Passel (1994) are expected to increase to 42 million by 2010. Based on this projection, perhaps the most compelling change that the population will see is increased diversity in US children. Children of new immigrants will account for half of this growth, with first and second-generation immigrant children potentially comprising 22% of the US school-age population (Fix & Passel, 1994). Given that the greatest increase will most likely be in the Hispanic/Latino population (Fix & Passel, 1994), bilingualism and biculturalism are both probable characteristics of this population. As a result, one of the child's cultures is likely to have a different awareness and/or perception of stuttering than the other. For example, many non-North American cultures are more likely than "mainstream" American cultures to view disordered speech (particularly stuttering) as a symptom of emotional disturbance or punishment by god or spiritual figure. In addition, specific to the Hispanic/Latino population, Maestas and Erickson (1992) found in a sample of 14 Mexican immigrant

mothers living in the US that 93% of them considered "God's will," as a probable explanation for their child's disability. However, despite this finding, research by Flores et al. (2002) also revealed high levels of variation in the health and use of health services of Latino subgroups including Cuban-Americans, Puerto Rican-Americans and Mexican Americans. For example, major Latino subgroup differences have been documented for rates of prematurity and low birth weight, asthma prevalence, illicit drug use, vaccination coverage, the prevalence of chronic conditions, and several indicators of health status and use of services.

In addition, to the aforementioned factors that may affect first and second-generation children, their culture may affect how they accept behavioral differences in themselves or others. A study conducted by Rodriguez, Mosquera, Manstead, and Fischer (2000) looked at the level of shame that Spanish and Dutch children may experience when presented with imperfect behaviors. One hundred and sixty-nine Spanish participants, and 158 Dutch participants between the ages of 7-23 were interviewed to understand how honor-related values affected pride, shame and anger. Each participant was either interviewed or given a questionnaire and asked questions pertaining to autobiographical experiences about times when they felt pride, shame or anger. In addition, they were given hypothetical situations in the form of vignettes. These vignettes were purposely designed to arouse the aforementioned emotions, and participants were asked how they would react in each vignette. The results indicated that the older Spanish participants described more intense shame experiences in social situations than did their matched Dutch peers. While these results may not be

generalizable to Hispanic/Latino children in our country, as it was conducted with children in Spain, the results do suggest that culture may be a variable to consider. This is apparent because despite being presented with the same experimental stimuli, the participants from Spain and the participants from the Netherlands demonstrated different results.

To review, the previous section not only looked at the multicultural history of the US, but also a specifically relevant culture group in this country now. In reviewing the history of this country, it is evident that not only have cultural subgroups always been present, but that these demographics are still changing. In addition, these shifting demographics also present a need to understand the role that one's ethnic group plays in the beliefs. However, although one's culture group is critical in establishing beliefs, it is necessary to also consider how religion may also have an effect.

Culture and Religion

While looking at the cultural diversity of the US population it is also important to consider the religious diversity in this country. This could have potentially shaped the perceptions of many disabilities, including communication disorders. It is impossible to discuss cultural diversity in the US without also considering religious diversity, as many immigrants initially came here for religious purposes. The prompting of this immigration was in part facilitated by the First Amendment in the Constitution. This founding principle is especially important because it was written to specifically protect religious freedom. The early immigrants were initially Protestants, but also came to include cultural groups such as Hispanic Roman Catholics. In addition, with the more

recent immigration of Middle Eastern and African immigrants, there are currently more than 4-5 million Muslims in the US (Barrett, Kurian, & Johnson, 2001).

The significance of the religious diversity in the US is that each religion has its own beliefs and practices that could affect both the identification of communication disorders and the delivery of such services to these populations. For example, many cultural or ethnic groups' beliefs and views are often embedded in religion. While this is less evident in Western or European cultures, which place an emphasis on medical care through medicine or rehabilitation, members of Non-European and Eastern cultures often see a connection between illness and internal forces (Battle, 2002). People with these beliefs consider good health to be reflection of spiritual harmony with one's body or nature and illness a reflection of disharmony. Thus, people with these beliefs will seek relief through prayer, or homeopathic methods over medicine or therapy services. In addition, other cultural groups see disease as the result of a specific punishment or deed or religious failing, and thus a person would more likely view a disorder or illness as a burden that they must bear. As a result, persons with these beliefs usually do not seek assistance from a person who does not share their beliefs (Cole, 1989). Some of these beliefs could affect how a particular group addresses both the perception and willingness to get treatment for a specific communication disorder, such as stuttering.

THE UNIVERSALITY OF STUTTERING AND CULTURE

While cultures themselves, even beyond those of the US, are inherently different, stuttering is a communication disorder that is universal. However, initially there was controversy surrounding the universality of stuttering. One of of the early pioneers of

stuttering research, Wendell Johnson, questioned that stuttering existed in all cultures. In his 1944 article, "The Indians have no word for it," he reported that stuttering did not exist in the Bannock, Utes, and Shoshone Indian tribes. This conclusion was based solely on tribe member interviews, examination of communicative exchanges with minimal communication pressure within the tribe, and the absence of a word for stuttering in each tribe's language. In contrast, Zimmerman (1983) later found evidence that stuttering did exist in these tribes. Although the tribes did not use the term stuttering, they did have variations of descriptions for stuttering. The confounding variable of Johnson's work appears to be that he failed to establish trust with the members of these tribes. Zimmerman found that after living on the reservation for 2 ½ months, the reticence of the Indians subsided. He felt that they no longer viewed him as a "professional" coming to study them. After establishing this trust, Zimmerman found that the tribe members had initially expressed hesitation because their tribe regarded stuttering as being abnormal and, thus, a behavior that is subject to disapproval. Additional groundbreaking work by Van Riper (1982) and Bloodstein (1995) further confirmed that stuttering appears across all cultures with data to support this ranging from African cultures to Asian cultures. Furthermore, for the cultures that were not examined they found no evidence to indicate that stuttering did not exist within it. This evidence provides support for the universality of stuttering as well as to the notion that though stuttering does exist across all cultures, perception of stuttering within that culture will significantly influence the willingness to even acknowledge the existence of the behavior. Examination of the work in the aforementioned studies illustrates that while stuttering is present across all cultures, the

way in which it is perceived and interpreted may be culturally dependent. In this sense, general knowledge and understanding of this complex disorder varies.

CROSS-CULTURAL UNDERSTANDING OF THE NATURE OF STUTTERING

Stuttering Awareness in Belgium

Cultural awareness of stuttering has also been examined globally in a series of replicated studies using a questionnaire. These studies were conducted in Belgium, China, and Brazil. The pilot study was conducted in Belgium by Van Borsel, Verniers, and Bouvry in 1999 and surveyed 1, 362 citizens of 10 different cities. The purpose of this pilot study was to shed light on the public's awareness of stuttering and attitude of non-professionals in that particular region. The questionnaire itself contained 13 questions in total, most of which were closed questions, and probed general knowledge of stuttering, and attitudes toward it. The researchers approached the potential participants in a shopping center, and eligibility was confirmed through self-report. The results of this survey were generally divided by age group with the exception of the few open-ended questions for which the answers were grouped by similarity. Results indicated that most participants were knowledgeable about general aspects of stuttering. However, when asked questions that addressed the potential existence of stuttering in other cultures, it was found that older participants believed that stuttering occurs only in the Caucasian race.

Results also revealed that the older group felt that intelligence in stutterers was lower. This demonstrates that age can shape cultural values and opinions. Lastly, when asked to compare the severity of stuttering to other handicaps such as wearing glasses and

wearing a hearing-aid, all age groups viewed stuttering as being the most severe. This finding in particular may indicate that members of this culture believe that stutterers have far-reaching limitations. Though this study was conducted in one country, the inclusion of participants from different regional areas may have also presented the opportunity for there to variation in their beliefs. Since participants were not divided into different cultural groups, it makes it is impossible to know if there were any individual cultural differences their results. Since Van Borsel et al. (1999) understood the limitations of their results and also the need to explore the public awareness of stuttering in other countries, they replicated the study in two other countries.

Stuttering Awareness in China

The first replication was completed in Shanghai, China (Xing Ming, Jing, Yi Wen, &Van Borsel, 2001). This particular location was chosen because China could potentially have the largest population of stutterers in the world given its global population. Similar to Belgium, stuttering is recognized as a communication disorder in China; however, there have been no investigations of this disorder in this country. Thus, in contrast to Belgium, it is unknown how professionals and non-professionals view this disorder. The methodology of this study was similar to the one used in Belgium, with the main difference being that participants were selected from one city, Shanghai. To ensure participant diversity, the survey was conducted in 12 different districts within the city. The researchers utilized the same questionnaire used by Van Borsel et al. (1999). The results of this survey were analyzed in the same manner as the survey conducted in Belgium, and indicated that people in the Shanghai area are aware of stuttering as a

disorder. In addition, for a number of aspects, such as prevalence, gender distribution, most respondents held correct views. The majority of respondents also knew that stutterers are not less intelligent and that stuttering occurs in all cultures. However, the participants did demonstrate a lack of knowledge about the heredity and cause of stuttering.

Like the previous study, significant differences were also found between the two age groups. The older age group was more likely to have met a person who stutters, and to accurately report the prevalence and gender ratio of stuttering. The younger age groups were more accurate for other aspects; particularly that stuttering was unrelated to handedness. This is significant because in the past, left-handedness has had a negative association with intelligence in Chinese culture. Since the majority of younger participants did not indicate that people who stutter were left-handed, this finding may indicate a cultural shift in the younger generation. One additional critical difference between the age groups concerned parental action. The majority of the younger participants could not provide an answer for whom they would seek out if their child stuttered. In contrast, the older participants indicated they would seek the services of a speech-language pathologist. This is particularly surprising because China does not have formal training for speech-language pathology. Several gender differences were also found, with females holding a more optimistic view than males regarding the possibility of treatment. A surprising finding was that females provided fewer ideas about the action to take with a stuttering child. This result was thought to be related to the family role pattern in China, with the man making the decision in these matters.

Van Borsel and colleagues' (1999) and Xing Ming et al.'s (2001), parallel questionnaire studies allow for some overall cultural comparisons to be drawn between these two different cultures. Taken together, results revealed that stuttering is a disorder most people are somewhat familiar with; however, the knowledge of non-professionals is limited in regards to basic facts. Comparison of these two studies also revealed that the Chinese participants have a much more accurate view about prevalence and gender distribution of stuttering, but that the Belgian respondents were more accurate in regards to handedness and stuttering. Another important difference was that most Chinese respondents viewed stuttering primarily as a learning problem or a complex psychological problem, whereas the Belgian participants mainly viewed stuttering as a medical problem. This difference may be linked to the conflicting views of Eastern and Western medicine. As previously mentioned, Western or European cultures often place an emphasis on diagnosis through medical intervention while Eastern cultures often see a connection between illness and internal forces (Battle, 2002). Yet another critical difference is that significantly fewer Chinese respondents indicated that they would be less likely to seek treatment than Belgian respondents would. Some of these differences may be directly related to differences in the cultural values between the respondents. For instance, the Chinese respondents' preference to seek services more than Belgian respondents may be directly related to the Chinese "Family Planning Policy." Due to the mandated one child policy, a family may now be more likely to seek out services because they want the very best for their single child. However, again similar to the Belgium study, results were not further divided into ethnic subgroups, making it impossible to

draw conclusions on the opinions of the entire Chinese population based solely on these results. While the comparison of these studies allows cross-cultural similarities and differences to emerge, a third parallel study was conducted to test these findings and explore awareness in another country.

Stuttering Awareness in Brazil

Pereira, Rossi and Van Borsel (2008) conducted a study in Rio de Janeiro, Brazil using the same survey used in the previous studies conducted in Belgium and China. Periera et al. also utilized the previously used "street-sampling" in major shopping areas within the city to survey 606 participants. Overall, the results indicated that stuttering is a disorder that is known within this culture with more than half of the participants reporting that they had been personally acquainted with someone who stutters at some point in their life. However, similar to the previous studies, some aspects of general stuttering knowledge of stuttering was incorrect. For example, the majority of participants provided generally incorrect information about prevalence, age of onset, and gender distribution. Another finding was that the majority of participants believed the cause of stuttering was emotional. However, several other findings were positive, as most participants indicated that they knew about the occurrence of stuttering in other cultures. In addition, the majority of participants indicated that they knew that intelligence levels in people who stutter did not differ from people who do not stutter. When analyzed for gender, the results indicated that the females were generally more knowledgeable about prevalence and intelligence. A major difference between age groups was that younger respondents had a more optimistic view about treatment,

whereas the older respondents indicated less often that they would consult a speech-language pathologist. This finding may indicate the increasing recognition of the profession in Brazil is still relatively young.

Finally, unlike the two previous studies conducted, the participants from this study were also analyzed by their education levels. Respondents with a higher educational level expressed a more accurate view with regard to prevalence, gender distribution and occurrence of stuttering in other cultures. This may indicate that education may play a significant role in development of one's attitude or awareness. The amount of participants in the study by Periera and colleagues was dramatically smaller, 606, as opposed to the 1000+ used in the other studies. Thus, the researchers noted that the results should be interpreted with caution; as such, a small number would not be generalizable to other cities or regions in Brazil. However, despite the limitations of these findings, it does provide further evidence for cross-cultural similarities and differences.

To compare results from the study in Brazil to the studies completed in Belgium and China, it appears that despite the geographic and cultural differences between these countries, all three groups of respondents generally estimated the prevalence of the stuttering too high, predicted treatment outcomes too optimistically and were generally incorrect about the hereditary and neurogenic bases of stuttering. Interestingly, compared to the results from Belgium and China, respondents in Brazil demonstrated differences in the form of higher percentages on three key questions. First, a larger percentage indicated that the onset of stuttering occurred before age two. Second, a higher percentage

indicated that stuttering did not occur in all races and third, more Brazilian participants responded that intelligence was higher in people who stutter. When asked their view of stuttering as a handicap, 48% of the respondents in Brazil felt that stuttering was the most severe handicap as compared to eyeglasses and hearing aids. This percentage fell between percentages reported for the respondents of China (30.9%) and Belgium (64.5%). Although the researchers did not analyze the results further, given the significant discrepancy in these percentages, it would be interesting to understand why the Belgian respondents viewed stuttering as a much greater handicap than the Chinese respondents. A better understanding of this disparity could help to further our understanding of what types of cultural values shape this perspective. Overall, the findings of these three studies provide interesting potential implications about global awareness and perceptions of stuttering.

Although these studies were initially conducted to assist in planning awareness campaigns for stuttering, the information gathered helped to demonstrate both cross-cultural differences and similarities in awareness and attitudes toward stuttering. While it is impossible to draw a global conclusion based on only the inclusion of three culturally diverse countries, the lack of knowledge shared by the group of respondents may indicate that there are some general misconceptions that may exist about stuttering across many different cultural and ethnic groups. Since the respondents were grouped and compared by their respective countries, a limitation of the results is that they may not be representative of all Belgians, all Chinese, or all Brazilian people. It would have been

advantageous if their results had been divided by ethnic group as well, to see if there had been potentially more differences in the survey results.

Furthermore, within all three groups of respondents there were clear differences in the responses of the younger versus the older groups of respondents. It was evident that across all three groups, the responses of the younger groups represented some potential changes in cultural perspectives on stuttering. For instance, in the study conducted by Xing Ming et al. (2001), they showed that the younger groups of participants were likely to seek the services of a speech-language pathologist, indicating a potential culture shift towards speech and language therapy to maximize their child's potential. The results from Belgium, China, or Brazil may not be directly generalizable to the US. Examining the perceptions of stuttering cross-culturally even at an international level, helps to understand similarities or differences that may be present in the perception and awareness of stuttering.

CROSS-CULTURAL STUDIES INTO THE AMERICAN PERCEPTION OF STUTTERING

Cross-Cultural Attitudes towards Communication Disorders

A general strength of the adult studies completed in the US on the awareness and perception of communication disorders is that cultural identification is often considered. In fact, in several studies it is built into the design or an element of the central hypothesis. Bebout and Arthur (1992) conducted a study that examined cross-cultural attitudes towards various speech disorders such as stuttering, cleft palate, hearing impairment and articulation disorders and found significant group differences in a number of areas. Participants included 166 immigrants, foreign students or monolingual students between

the ages of 17-28 who were at least second-generation living in the US and Canada. Attitudes and perceptions of communication disorders were probed through the use of a questionnaire that was developed to examine the participant's perceived cause of each disorder, and their community and family's attitude towards people with each disorder. The questionnaire consisted of 12 statements (e.g., "Severe adult stutters should go to a doctor for help with their speech") that were nearly identical for each disorder and each respondent was asked to mark his or her opinion on a 4-point scale. The data was analyzed for North American born versus foreign-born groups, for the six major country of origin groups and for the five major first-language groups and then across disorders without regard to participant groups.

There was a significant difference found between the North-American-born and foreign-born groups for the following two statements across the four disorders: a) "Persons with this (disorder type) could speak better if they tried," and b) "Many persons with this (disorder type) s are emotionally disturbed." Participants born outside of North America tended to give responses that indicated more agreement with the aforementioned questionnaire statements. The results of this study suggest the presence of cultural differences could affect how speech-disordered members of those cultures may be perceived. For instance, participants born outside of North America were more likely to consider a person with a communication disorder as emotionally disturbed. This in turn could mean that they could treat a person with a communication disorder with more disapproval. Although this study provided some important cultural implications, all of the participants chosen were from an educated subpopulation, which may not have been

representative of their culture. In addition, this questionnaire only examined a limited amount of disorders and only surveyed the attitudes of adults. However, despite the limited sample, the presence of significant differences indicates that differing perceptions and opinions about communication disorders exist across cultures within the same country. While this study did address the perception of stuttering to a certain degree, this was not the focus. In order to begin to understand the perceptions of adults towards stuttering and people who stutter it is necessary to examine studies that specifically address this issue.

Cross-Cultural Attitudes towards Stuttering

Mayo, Mayo, Jenkins, and Graves (2004) surveyed 400 African American and Caucasian adults to examine cross-culturally their knowledge and perspectives on stuttering. Similar to Bebout and Arthur's study, a questionnaire was used, although this survey focused on examining knowledge of stuttering such as prevalence, onset and other related factors. Jenkins and colleagues found commonalities and differences between the two cultural groups. Both groups had general knowledge about stuttering such as the higher incidence of males and age of onset. In addition, each cultural group identified itself as more likely to stutter than members of other cultures did. However, the main difference was the overestimation of the prevalence of stuttering by the African American participants. The researchers did not provide an explanation for this finding; however, it may because in the African American population there is a higher prevalence of stuttering within their own culture. Specifically, the prevalence has been reported to be almost 3% as compared to the .7% for Caucasians (Cooper & Cooper, 1996). While

this survey only examined the attitudes of two cultures, results did suggest that there is some misinformation shared by cultures about stuttering and people who stutter (PWS) in the general population. In addition, the overestimation of the prevalence by the African American participants may suggest that one's cultural community could directly influence their basic knowledge of the disorder.

In summary, both of these studies provide culturally relevant insight into the perception of communication disorders, but what remains unknown is when these beliefs develop or whether the results are generalizable to a younger generation. It is then necessary to explore the findings of studies conducted with children that look at both the awareness and perception of communication disorders in general and specifically stuttering.

CHILDREN'S AWARENESS AND PERCEPTIONS OF COMMUNICATION DISORDERS AND DISABILITIES

While various studies have been conducted to look at the opinions of adults as related to stuttering or other communication disorders, it is also important to consider the opinions of younger children as well. Children in various age ranges may exhibit opinions that may be expressed differently across a variety of speech and language disorders. Previous research in this area has targeted the perception of articulation disorders (Crowe-Hall, 1991), voice disorders (Blood & Hyman, 1977), and motor speech disorders (Lass, Ruscello, Harkins, & Blankenship, 1988). Collectively, this research has found that typically developing children generally hold negative perceptions of speakers with communication disorders.

Voice Disorders

Blood and Hyman (1977) sought to determine children's perceptions of voice disorders, particularly nasal resonance disorders. They recruited 120 elementary school children that consisted of an equal number of kindergarteners, first graders, and second graders. These children then listened to four different female children's voices that ranged from no nasal resonance to severe hypernasality and then had them respond to 20 questions to determine their awareness and attitudes toward these four speakers. Results indicated less negative perceptions at younger ages. Children in all three grades responded more negatively to the voice samples as nasal resonance increased. However, the kindergartners were more positive than both the first and second graders when rating a speaker with moderate nasal resonance. Although these results are not applicable to all communication disorders, they do suggest that age may play a factor in children's perceptions of communication disorders.

Articulation Disorders

Due to the limited generalization of the Blood and Hyman study, additional studies have been conducted to look at the awareness and perception of other communication disorders. In a study conducted by Crowe-Hall (1991), the attitudes of fourth and sixth graders towards peers with and without mild articulatory disorders were examined. Unlike Blood and Hyman's study, the visual and auditory component to speech production made it necessary to use a videotape. Six speakers were chosen to demonstrate normal articulation to articulation disorders with errors on one or two phonemes for the videotape presentation. The speakers were balanced between genders

to reduce potential bias. After watching each speaker, each of the 348 participants were asked to answer three questions that related to the speaker's communication ability, the speaker as a peer, and their perception of the speaker. The results indicated that significantly more attitudes that are negative were held toward peers who exhibited severe articulatory errors. Results further revealed that children reacted more negatively when the speaker's articulatory errors were more visible (i.e., in lateralized /s/ and /z/ production). The results of this study may indicate that children react more negatively to a communication disorder when it is more visually noticeable in the person's speech. This may provide some explanation as to why stuttering may be perceived more negatively as it typically is a disorder that is visible to the listener.

Children with Other Disabilities

In addition to examining communication disorders, research has also been conducted to look at children's perceptions to students with special needs. This is a critical area to investigate as a child with a communication disorder could be viewed by some as a child with special needs. In a study conducted by Nabors (1997), a choice-of-friend task was used to evaluate children's feelings towards their peers with special needs. The children used in this study were 59 preschool students in an inclusion classroom. Through an interview, the researcher asked each child to nominate three students from their class who they would like as their friend, another three students they would invite to their birthday party, three more they would like to play with on the playground and three they would not like to play with. The children with special needs

did not receive a significant amount of negative nominations. However, they were infrequently mentioned as desired playmates. Evidence from this study may indicate that children's' preferences for typically developing peers and lower opinion of disabilities may not be specific to just communication disorders.

Examining children's perceptions of communication disorders and disabilities provides us with a basis for understanding the potential for negative perceptions towards stuttering. For instance, the more negative perception of visible articulatory disorders versus less visible ones (Crowe-Hall, 1991) may indicate that children could hold a more negative perception of stuttering the more visible it is. The results of studies aimed at the perception of communication disorders besides stuttering may provide implications for how stuttering may be perceived. However, given the complexity and cross-cultural variation observed in the understanding of the nature of stuttering, perceptions derived from other communication disorders may not be generalizable.

CHILDREN'S AWARENESS AND PERCEPTIONS OF STUTTERING

Awareness and Perceptions of Disfluent Speech in Adults

To date, studies have been conducted since 1958 to examine children's awareness of stuttering in both adults and other children. Some of the earliest studies were conducted by Giolas and Williams (1958) and Culatta and Sloan (1977). In both studies, students from kindergarten through fourth grade were used as participants. Sixty first through fourth graders were used in Culatta and Sloan's study, while Giolas and Williams included 120 children from kindergarten through four grade classrooms. The participants

in both studies were instructed to answer a series of questions after listening to an audio recording of an adult who demonstrated different forms of disfluencies. In both studies, the students indicated a preference for fluent speech over stuttered speech. Additionally, in the study by Giolas and Williams (1958), they found that their second grade participants were able to define the disfluent speech as stuttering. However, in the study conducted by Culatta and Stone (1977), none of their same age participants used the word stuttering to label the disfluent speech. This may indicate that use of the term stuttering may be used inconsistently among children even of the same age group. In addition, since the participant's familiarity with stuttering or people who stutter was not specified, it is unknown whether this may have played a role in their use of the term stuttering.

Additional research has been conducted with both school age (Franck, Jackson, Pimentel, & Greenwood, 2003) and middle school children (Evans, Healey, Kawai, & Rowland, 2008) to examine their perceptions of either a peer or a person who stutters. In the study conducted by Franck et al. (2003), the researchers sought to understand school-age children's perceptions of a stutterer versus a non-stutterer, and whether these children differentiated between personality and intelligence related traits. Seventy-five children from fourth and fifth grade classrooms were used as participants and ranged in age from 9 to 11. A videotaped presentation of a speaker reading a poem either fluently or disfluently was shown to each group of students. The viewing of the two recordings was randomized and each classroom was only exposed to one presentation of the video. Perceptions about the speaker was obtained using a bipolar scale, in which each child

only circled pairs of dichotomous adjectives to describe the speaker. These adjectives either described intelligence or personality characteristics of the speaker.

The findings of this study indicate that there is a clear distinction between the perceptions of school-age children toward stutterers versus non-stutterers, as the mean ratings from each video presentation was statistically significant. However, no significant difference was found between the ratings of personality and intelligence related traits in the disfluent condition, meaning that the children did not make a clear distinction in intelligence or personality characteristics. Interestingly, the pairs that were the most statistically different were all personality related traits. While this study does provide evidence that by the time children reach fourth or fifth grade they may hold a negative perception of stutterers, it is difficult to determine based on this limited data if this perception develops at an early age. In addition, since each classroom was shown a different video presentation it is not known if the results would have differed if each classroom had been shown each video.

Similar to the study conducted by Franck et al., (2003), Hartford and Leahy (2007) sought to compare children's perceptions of a fluent adult speaker to the same adult producing simulated stuttering. The simulated stuttering was subjectively rated by speech-language pathology graduate students to range from moderate to very severe. The participants included 84 students between the ages of 6-13. Unlike the previous study, the participants listened to both fluent and disfluent audio recordings. After listening to these recordings, the participants then responded to 14 questions that contained possible positive and negative attributes about the speaker (e.g. who do you think would be a quiet

person?). The results revealed that these students assigned a greater number of negative attributes to the disfluent speaker than to the fluent speaker. Furthermore, when examining age, the older children (8-13) assigned more negative attributes to the disfluent speaker overall than the younger children (6-8). These included attributes like being quiet or shy. In addition, when asked affective questions, such as which would you like as your friend, the older participants preferred to be friends with the fluent speaker rather than the disfluent speaker, but the younger students did not indicate such a preference. These results suggest that children younger than five may actually demonstrate less negativity toward stuttering.

Awareness and Perceptions of Disfluent Speech in Peers

There is limited data on how listeners' perceive children or adolescents who stutter. Evans, Healey, Kawai, and Rowland (2008) recently sought to explore the perceptions of middle school students towards a peer who stutters. They also wanted to examine whether or not these perceptions changed as a function of stuttering frequency and severity. The researchers of this study hypothesized that negative perceptions in this age group would be higher due to the high value middle school students place on peer approval. In addition, previous research has indicated that adolescents who stutter are at greater risk for bullying or social isolation than adolescents who do not stutter (Blood & Blood, 2004). This is an important piece of information because the bullying may imply that the other children are aware of the speech differences in their stuttering peers. The participants included 64 middle school students who ranged in age from 10 to 14 years. The participants were also screened to make sure that they had limited exposure to either

adults or children who stutter. For the stimuli task, the participants were shown a video of a child they would perceive as a peer who told a child-appropriate joke. This joke was recorded by the speaker with varying amounts of stuttering frequencies (i.e., 1%, 5%, 10%, and 14%). Each participant only viewed one of the four video presentations. After the video presentation, each participant then completed a survey that asked him or her statements that were affective, behavioral or cognitive in nature.

The results of this study indicated that the middle school student's perceptions were influenced by the frequency of the stuttering that the student demonstrated. Not surprisingly, when the frequency of stuttering was decreased, the children gave more positive responses regarding the speaker's behavior and cognitive abilities. However, with affective statements, which concerned whether they would be friends with the student, no significant influence was found across the frequency rates. Results appear to indicate that middle school students may be more tolerant of disfluencies and this may not affect their willingness to have the student as a friend. Thus, this study provides an optimistic view on the impact of adolescent perception of stuttering on friend selection. Despite students having a more negative perception about speech production characteristics when more disfluencies were present, this did not appear to affect the students' feelings and emotions toward the student.

In addition to understanding how children perceive disfluent speech, research has also been conducted to explore what traits children who do and do not stutter think are characteristics of effective communicators and vice versa. In a study conducted by Bajaj, Hodson, and Westby (2005), qualitative data was obtained from interviews conducted

with 23 male children who stutter and with 23 fluent male peers. The researchers in this study sought to understand the criteria used by CWS and their fluent peers when describing positive and negative communicative behaviors of others and their own appraisals of themselves as communicators. The participants used in this study were between the ages of 5; 10 and 8; 10 months old and verbal-descriptive data were obtained through structured interview questions that required them to assign certain attributes to "good talkers" and to "bad talkers."

The findings of Bajaj, Hodson, and Westby (2005) indicate typically fluent children most readily identified pragmatically based behaviors (e.g., they tell lies) when describing "bad talkers," rather than speech production based behaviors (e.g., they talk loud). In contrast, CWS defined "good talkers" and "bad talkers" primarily by how deficient or endowed they were in all of the following behaviors: fluency, articulation, or grammatical-correctness. For this group, fluency appeared pivotal in whether or not they considered themselves and others "good talkers." The results from this study provide evidence that ideas about communicative abilities in children who stutter may be a direct result of their stuttering experiences. However, it may also suggest that in the fluent children, their limited concern with stuttering behaviors in their identification of "bad talkers" may indicate that they have a limited awareness or concern about stuttering.

Awareness and Perceptions of Disfluent Speech in Puppets

While studies have been conducted to examine children's perceptions of stuttering in peers, adults and even within themselves, three studies have been conducted to examine how children perceive stuttering in puppets. Puppets may be thought as ideal

speakers, given their physical neutrality (Ezrati-Vinacour, Platzky & Yairi, 2001). In this sense, the use of a puppet is thought to reduce the amount of bias that the listener might have if the speaker were human.

Evaluation of Intelligence

In a study conducted by Griffin and Leahy (2007), the researchers had 56 boys and girls 3 to 5 years-of-age view a videotape of a puppet that produced moderately severe stuttering and one that spoke fluently. Of the two types of puppets, 79% of the comments made about the puppet who stuttered were negative. Children as young as 3 indicated that the puppet who stuttered was less intelligent than the fluent puppet, but they only made a few negative comments about the disfluent puppet's personality. Evidence from this indicates children as young as 3 begin to express negative perceptions about the intelligence of a disfluent speaker.

American Children's Awareness of Stuttering

Aside from using puppets to understand typically developing children's perceptions of stuttering, an initial study conducted by Ambrose and Yairi (1994) sought to investigate preschoolers' awareness of disfluencies. In this landmark study, the researchers used a pair of identical seal puppets, with one puppet producing fluent speech and the other producing disfluent speech. Participants in this study were recruited from a child development center at the University of Illinois and were comprised of 36 CWNS and 52 CWS, who were matched for gender and age. The experimental task required the children to identify the puppet whose speech resembled their own six times. In addition, the children were also asked to informally label the speech of the puppet with whom they

self-identified. The child's correct self-identification was used as an indicator of awareness of stuttering in this study.

The results indicated that CWS and CWNS as young as age 3 correctly self-identified. However, the majority of children in this study did not correctly identify themselves until age 5. Therefore, it was not until this later age that they showed the strongest awareness of stuttering. In addition, though this result was not formally analyzed, the researchers indicated that when labeling the speech of the puppets (i.e., "How does this puppet talk? And this one?") the children most often responded with "I don't know." This was found across all ages of children in the study. The results of this study suggest that the development of awareness of stuttering increases as the age of the child increases, but the awareness of stuttered speech may be apparent in some preschoolers. The researchers did indicate that with a restricted age range of participants it was not possible to fully understand if awareness of stuttering did truly increase with age. In addition, results also appear to suggest that despite awareness, the ability to label one's speech is a skill that develops at an age greater than 5. This study is also useful because it provides insight into the awareness and perceptions of stuttering in American children. Though the cultural background for the participants in this study were not specified, it could be reasoned that they all came from a similar socioeconomic background, as they were all recruited from the University of Illinois. This provides results that could be compared with other socioeconomic groups in the US or with children of a similar background even in another country.

Israeli Children's Awareness and Perceptions of Stuttering

Ezrati-Vinacour, Platzky and Yairi (2001) examined multiple aspects of awareness and perception of stuttering including self-identification and labeling and pragmatic implications by addressing playmate preferences. This study directly addressed the limitations of the Yairi and Ambrose (1994) study and specifically included a wider age range of children (ages 3-7). The 80 participants in this study were all typically developing Israeli children. Like Ambrose and Yairi (1994), the children were shown randomized video samples of an identical fluent and a disfluent seal puppet. After viewing the video, the researchers then asked them a series of questions that required them to discriminate between the puppets, identify the puppet who speaks like them, and, lastly, evaluate the disfluent and fluent speech of the puppets. Results indicated that as early as age 3, some children could identify and discriminate between fluent and stuttered speech. Significant awareness of disfluent speech occurred for the majority of children between ages 4 and 5. However, only one 6-year-old and four 7-year-olds labeled the disfluent speech as "stuttering." There were also clear negative perceptions evidenced by age 4, with participants unanimously agreeing that disfluent speech was not good and preferring the fluent puppet to the one that stutters. However, these perceptions were not directly tied to an awareness of stuttering, and suggest that a social preference for fluent speech may develop earlier than an awareness of stuttering.

While the Ezrati-Vinacour et al. (2001) study in particular presented dynamic insights into the awareness and perception of typically developing children, perhaps its greatest weakness is that it implied generalizations of these findings to not only the general Israeli child population, but to all children. Nowhere in the discussion of the

findings is there reference to the limitation of using a select group of children from Israel, or an acknowledgment that these findings may not represent the beliefs of all Israeli children. Also children from a lower socio-economic status were not included and as a result it is unknown whether this factor could have impacted the results. This could have influenced the belief system of the participants in this study. In addition, the children selected from this study were only from the greater Tel Aviv area, a city that according to Ram (2005) is not only one of the most important cities in Israel, but is in Israeli culture perceived to be the political and cultural opposite of Jerusalem.

Limitations of Ezrati-Vinacour et al. (2001)

In order to fully understand the limitations of the study by Ezrati-Vinacour and colleagues (2001), it is necessary to also understand Israel and the specific dichotomy in this country between Jerusalem and Tel Aviv. Jerusalem signifies the old traditional Jewish identity, which includes orthodoxy, fundamentalism and ethnocentrism. By comparison, Tel Aviv represents the modern Hebrew Israeli identity, and in doing so exemplifies secularism, liberalism, and pluralism (Ram, 2005). However, even beyond qualitative differences, these two cities share noticeable demographic, sociological, and political differences, with Tel Aviv having a more liberal and democratic set of ideals relative to Jerusalem. Jerusalem through its great ethnic diversity has come to experience international, inter-religious and inter-ethnic rivalries. Tel Aviv has seemed to avoid the same conflict by excluding "others" from its boundaries, both by rejecting traditional Jewish beliefs and any Arab influence and, as a result, retaining a more homogenous population (Ram, 2005). This evidence suggests that the results from Ezrati-Vinacour et

al. (2001) are not applicable to the general Israeli public, as Tel Aviv appears to have a unique set of cultural values that are in line with other Western societies. As a result, it may be suggested the perception of stuttering in this city could be more reflective of Western society, which employs a medical perspective. These values may also be more in line with those of the US than dissimilar.

IMPLICATIONS OF CHILD-BASED STUDIES

A strength of Ambrose and Yairi (1994) and Ezrati-Vinacour et al. (2001) and other studies that look at the awareness and perceptions of stuttering in children is that they provide good evidence to support the negative perceptions of children towards stuttering. Results from these studies also appear to indicate that the development of this awareness may occur at an early age. However, what these studies collectively lack is any regard to how culture may differentially influence children's perceptions of individuals who stutter. In all the studies, attention was only given to either age or gender and general assumptions were made about the results. As demonstrated by the examination of the unique cultural identity of Tel Aviv, results obtained from even one city within a country may not be generalizable to other cities within the same country.

In conclusion, the cultural influence on young children's awareness and perception of stuttering requires further investigation. The US's unique multicultural history and prevalence of many different cultural subgroups may indicate that children develop and hold many different viewpoints about disfluent speech. In addition research conducted to examine the awareness and perceptions of stuttering in both this country and the world have yielded inconclusive results. Therefore it is unknown whether differences would be found between multiple cultural groups within the country or if a child's cultural identity plays a significant enough role to have shaped values and beliefs that are unique to each child. Thus, the purpose of the present study is twofold: (1) to investigate the awareness and perception of stuttering for American children age 3 to 7 from diverse cultures (2) to compare those findings to findings of awareness and perception of stuttering for children from Israel and America (Ezrati-Vinacour, Platzky, & Yairi, 2001; Ambrose & Yairi (1994).

Chapter 2: Method

PARTICIPANTS

Power Analysis

To determine the optimal number of participants needed for this study, a power analysis was conducted. Results indicated that for a large effect size a sample size ranging from 70 to 80 participants was needed. Only 16 participants were recruited for the present study; thus, the results should be interpreted with caution.

Recruitment

Four groups of children from ages 3 to 7 participated in this study (See Table 1). Although a concerted effort was made to replicate the five age groups used by Ezrati-Vinacour et al. (2001), no 6-year-old participants were successfully recruited. Three of the four age groups (i.e., the 3, 5 and 7-year-olds) included three participants. The 4-year-old group included seven participants. The majority of the participants were recruited from various preschool classrooms at the University of Texas Child Development Center. The parents of the children who attend this center are either UT Austin faculty or staff. Additional participants were recruited through contacting graduate students in the masters program at the University of Texas at San Antonio Informed consent was obtained for all participants in the present study.

Table 1: The age range, mean age (M), group size, gender and ethnicity for each age group.

Group	Age	Range	M	Group Size	Gender	Ethnicity
I	3	3;3-3;10	3;5	3 Participants	2 Males 1 Female	2 Caucasian 1 Asian
II	4	4;1-4;12	4;6	7 Participants	3 Males 4 Females	7 Caucasian
III	5	5;0-5;6	5;1	3 Participants	1 Male 2 Females	3 Caucasian
IV	7	7;2-7;8	7;4	3 Participants	1 Male 2 Females	3 Caucasian

SES, Ethnicity, and Language

All participants were classified as representing the middle socioeconomic class as indicated by their parents either being faculty and staff from the University of Texas at Austin or a graduate student at the University of Texas San Antonio. Although a concerted effort was made to include as many children from diverse ethnic backgrounds as possible, 15of the 16 participants came from a Caucasian background, with only one participant of a diverse ethnicity (i.e., Asian descent)[1]. In addition, English was the first language of each participant.

INCLUSION CRITERIA

Speech Fluency

Each participant was classified as a normally fluent speaker with no history of stuttering. This classification was determined through an analysis of a 100-word conversational task that was obtained for each participant. Participants were considered to

be a normally fluent speaker or rather a child who does not stutter (CWNS) if he/she exhibited *two or fewer* stuttering like disfluencies (SLDs) per 100 words of conversational speech (Conture & Kelly, 1991) (typically 90% or more of CWNS exhibit less than 3% SLD; see Conture 2001, Table 1.2). SLDs include sound/syllable repetitions, whole word repetitions, audible sound prolongations, and inaudible sound prolongations.

Speech, Language, and Hearing Abilities

A comprehensive standardized screening evaluation of speech and language (i.e., The Fluharty Preschool Speech and Language Screener [FPSLS]), and a standard screening of hearing were employed to insure that ALL participants were within normal limits regarding speech, language and hearing abilities. The FPSLS is norm-referenced for children up to 6 years of age. Although 7-year-olds were not included in the normative sample, for the purposes of the screener, the eligibility used with the 6-year-olds was also applied to this age group. In addition to this later age group, this measure also did not include current normative data for a diverse group of American children. However, language differences were considered in determining eligibility for participation. Specifically, any errors made on this measure were applied to the context of the child's linguistic background or dialect. If any of the errors made were consistent with the child's dialect then they were not considered an error, rather a difference. No participants in the present study demonstrated errors that were related to dialectal variations. A bilateral pure tone audiometric hearing screening was conducted at 25

[1] Given that ethnic diversity was a primary focus of the present study, this is a confounding factor that will be examined in more detail in the discussion. In addition, both the lack of ethnic diversity and recruitment procedures used to obtain participants will be evaluated.

decibels sound pressure level for children under 5 years of age and at 20 decibels sound pressure level for children over age 5 for 1000, 2000, and 4000 hertz. Children were excluded from the study if they did not pass the screening at any of the frequencies in either ear (ASHA, 1990). If participants failed any of the standardized screening test components and/or failed the hearing screening, they were excluded from the present study. One 3-year-old female participant failed the pure-tone hearing screening and was excluded from participating.

PROCEDURES

Experimental Stimuli

The experimental stimuli used in the present study were developed to be similar to the one initially developed by Ambrose and Yairi (1994) and later used by Ezrati-Vinacour, Platzky, and Yairi (2001) in their study on awareness of disfluency in CWNS. A video of two seal identical seal puppets was made. The researchers chose seals due to their physical neutrality. The seals also diminished any bias that may be developed toward a person. In the video, these puppets each produced six identical sentences with one puppet producing fluent speech and the other producing stuttered speech. The voice used for the puppets was the voice of a young woman imitating a gender-neutral young child. The six sentences that were produced were the English equivalent of the six Hebrew sentences used by Ezrati-Vinacour and colleagues (2001). These sentences were initially based off the ones used by Ambrose and Yairi (1994), which incorporated the use of article-noun-verb-adjective sentences with high probability words. Though Ezrati-Vinacour et al. (2001) did not use a direct translation of Ambrose and Yairi's (1994) sentences, the ones selected for their study were composed of high probability words in

Hebrew, and were considered the most frequently used and understandable to 3-year-olds. The sentences that were translated into English were also composed of high frequency and highly understandable words and were, therefore, deemed appropriate to use as experimental stimuli. No additional sentences were incorporated, as Ambrose and Yairi (1994) had concluded that six sentences was the optimal amount of sentences to use to keep the interest of 3-year-olds.

Each pair of sentences was presented twice and only differed in its fluency and while only one puppet talked at a time, both puppets were seen simultaneously. A concerted effort was made to make the disfluencies as similar to the original stimulus sentences used by Ezrati-Vinacour (2001) rather than Ambrose and Yairi (1994). This is because Ambrose and Yairi (1994) only used one type of disfluency, sound repetitions, in their study. However, some changes had to be made based on the different syllable structure of the words in English versus Hebrew. The types of disfluencies incorporated into the sentences were the types labeled by Yairi and Ambrose (1992) as "stuttering-like disfluencies." They determined that these types of disfluencies occurred most often in the speech of children who stuttered, as well as were the most likely to be perceived by listeners as "stuttering." Similar to Ezrati-Vinacour et al. (2001), three of the sentences included disfluencies such as sound, syllable and whole-word repetitions, while the other three included audible and inaudible sound prolongations. All repetitions included at least three extra iterations, and prolongations were at least one second in length. The puppet did not produce unnecessary tension or movements, as the purpose of the presentation was to focus on the disfluencies and not any other aspects of stuttering. To

determine the authenticity of the stuttering, the speech of the disfluent puppet was presented to three other speech clinicians. These speech clinicians either had exposure to stuttering through working with clients or taking course work on fluency disorders. All three clinicians determined that this speech was authentic enough to be considered stuttering. Unlike both Ambrose and Yairi (1994) and Ezrati-Vinacour et al.'s (2001), the position of the puppets did not alternate randomly. The decision to keep the puppets in the same position was made to aid the children in later identifying the puppets for the awareness, labeling and evaluation subtasks. The presentation of fluent and disfluent speech was randomized, meaning that some sentences began with the disfluent puppet and others began with the fluent puppet. Though randomized, each puppet initiated three of the sentences. Since the presentation of these experimental stimuli was on a DVD, each participant viewed the same order of sentences.

EXPERIMENTAL TASK.

Each participant viewed the video individually during a single session, in either an administrative room at his/her daycare (N = 11 participants) or in a quiet separated area in his/her home (N = 5 participants). These sessions lasted typically between 15-20 minutes. Before beginning the experiment, the examiner explained to the child that they were going to watch a short video of two puppets on the examiner's computer screen. Like Ambrose and Yairi (1994), no further instruction was given, which differed from the procedure used in Ezrati-Vinacour et al. (2001), in which the examiner verbally produced examples of different disfluencies to the child prior to showing the video. This demonstration was not used in the present study because a presentation by the examiner

would likely have been highly variable from participant to participant, and may not have been as authentic as the disfluencies used in the video, which were accurately identified as stuttered speech by other graduate student clinicians.

After the short introduction was provided, pairs of experimental sentences were presented to the child. Unlike Ezrati-Vinacour et al. (2001), the tape was not stopped to allow time for asking questions after each pair of sentences was presented. The Primary Investigator (PI) of the present study decided that keeping the video running until all six statements were viewed would increase task efficiency and reduce response fatigue. It was further thought that with the presentation of the same question six times, the children might have been more likely to answer randomly or provide the same answer for every question as their interest decreased. Thus, rather than stopping the tape after each set of sentences, the following questions were asked after the presentation of all six sentences: (1) do the puppets talk the same way? (discrimination) and (2) which puppet talks like you? (self-identification). The puppets' images were allowed to stay frozen on the computer screen for 20 seconds to provide each child ample time to point to the desired puppet.

Following the questions related to the discrimination and self-identification subtasks, the rest of the procedure was identical to that used by Ezrati-Vinacour et al. (2001). Since Ambrose and Yairi (1994) only examined awareness through a self-identification task no further procedures were provided. The child was then presented with a new sentence produced only by the disfluent puppet. Following this observation, the child was immediately presented with the following two questions: (3) what do you

call this kind of talking, and this one (PI pointed to each seal as she asked this question)? (labeling) and (4) is that talking good or not good? (evaluation). Finally, another pair of fluent and disfluent sentences was presented and the following questions were asked: (5) which one would you like to play with? (evaluation) and (6) why? (evaluation). Please see the Appendix for the Experimental Stimuli Protocol used with each participant.

RELIABILITY

Test-retest reliability

Intrasubject consistency was obtained by re-administering the experimental stimuli to the following number of participants from each age group: two from the 3-year-old group, five from the 4-year-old group and one from the 5-year-old group. This was completed one week after the first presentation and compared to their initial responses. Logistical reasons including absences, school holiday breaks, and difficulty scheduling a follow-up visit prevented the readministration of the task to 7-year-olds and the same number of children from each age group. However, 50% of the total participants across the four age groups were re-tested (i.e., 50% of total data). For the first two experimental stimuli questions, discrimination and self-identification, the percentage of agreement between the response during the initial testing and the response during the re-test was 75%, 50% and 25% for the ages 3, 4, and 5 respectively. These data suggest that these questions, did not elicit acceptably reliable responses.

Test-retest reliability was also obtained for the disfluent speech labeling subtask by comparing the initial answer category classification (i.e., stuttering, general problem

related to speech, general observation, and no response) to the re-test answer category classification. Across all three of the age groups the percentage of response agreement was 75% for the labeling task.

Lastly, reliability was also calculated for the two evaluation subtasks: evaluation of the disfluent puppet's speech as good and not good, and preference for the fluent or disfluent puppet as a friend. Since these both addressed the same skill, evaluation, the initial presentation response and re-test response for these two questions was combined to determine an individual participant's percentage agreement for the entire evaluation subtask. These scores were then averaged across participants to determine an overall percentage of agreement for the entire subtask. It should be noted that reliability was not calculated for the third evaluation subtask, reason for playmate selection, because too few children selected the fluent puppet at the initial presentation. Reliability for this subtask was also not obtained by Ezrati-Vinacour et al. (2001), although no rationale was given. The calculated percentage of response agreement across all three age ranges was 88% for the two combined evaluation subtasks.

In summary, the higher percentage obtained for both the labeling and evaluation subtasks indicate that these questions provided answers that were more reliable. The highest percentage of agreement may have been obtained for the evaluation subtask because the wording of the question provided the child with answer options (i.e., is this type of talking good or not good?). Therefore, this could have made these questions less demanding for the child and easier for them to maintain consistency in their responses. It may have been that the child's uncertainty about the way that they spoke and

unfamiliarity with the disfluent puppet's speech that made their answers more variable in the discrimination and self-identification questions. They could have simply changed their opinion about the way they spoke or the way the puppets spoke between the initial viewing and the re-testing.

Interrater Reliability

The reliability in classifying the children's responses in the labeling task and the specific friend preference task was done on-line, rather than off-line, between the two examiners. No disagreements were noted. This finding was not surprising as the two examiners developed the assessment protocol and experimental stimuli together and, therefore, had a similar method for classifying answers.

DATA ANALYSIS

The data analysis conducted was similar to that used in Ezrati-Vinacour et al.'s (2001) study; however, a major difference occurred in the analysis of both the discrimination and self-identification questions. The first task, discrimination, required the child to discriminate or determine whether the two puppets spoke alike. Like Ezrati-Vinacour et al. (2001) the child received a score of 1 for correct discrimination (i.e., indicating that the puppets spoke differently) and a score of 0 for incorrect discrimination (i.e., indicating that the puppets spoke alike). The second task, self-identification required the child to determine which puppet spoke like them. Like the previous task, the child received a score of 1 for correct self-identification (i.e., indicating the fluent puppet spoke like them) and a score of 0 for incorrect self-identification (i.e., indicating that the

disfluent puppet spoke like them). Since these questions were only asked once, the range of the child's score could only vary from 0-2. This was in contrast to the range of 0-6 that children in Ezrati-Vinacour et al.'s (2001) study could obtain with six presentations of the same question. The limited range of scores also meant that the data obtained could not be analyzed with a parametric method, such as a Pearson Product Moment Correlation, as the data were ordinal rather than continuous in nature. In addition, despite the presentation of different types of disfluencies, because there was only one presentation of these questions, no analysis was performed to look at the potential influence of the type of disfluency on awareness.

The classification of the answers in the labeling subtask also differed slightly from the answer categories used by Ezrati-Vinacour et al. (2001). Though Ambrose and Yairi (1994) addressed labeling in their study, they did so informally, and formalized answer categories were not established or used for analysis. In the present study, the answers were classified into one of the four categories: (a) statements including the word *stuttering*, (b) statements that included references to speech-related problems, but did not include the word *stuttering*, (c) statements that were general observations and not necessarily speech-related, and (d) no responses, which included responses like "I don't know." Answer choice (c) was changed in this study to reflect statements that included general observations, as many of the children made statements that were neutral in nature, and did not specifically indicate a problem with the puppet's speech. The original answer category used by Ezrati-Vinacour et al. (2001) was one that referred to statements that referenced problems, but did not have to be specifically speech-related. For the first

two evaluation subtasks, answers were categorized into two dichotomous categories. In the first question, answers were classified as good or not good, and in the second question, answers were classified as a preference for the fluent or disfluent puppet. For the purposes of using a Spearman rho analysis during data entry, the negative response options were assigned a score of 1 (not good, fluent puppet playmate selection) while the positive response options were assigned a score of 0 (good, disfluent puppet playmate selection). The response to the last evaluation subtask, which was the reason given for the choice in the second evaluation subtask, was classified as either a speech reason or a non-speech reason. However, only the answers that included a selection of the fluent puppet as a playmate were used in data analysis. These answers were only used because the analysis sought to determine if children selected the fluent puppet for speech reasons as their age increased. To be consistent with Ezrati-Vinacour et al. (2001) and Ambrose and Yairi (1994) an alpha level of .001 was used to determine significance when performing both chi-square tests and a Spearman Rho analysis.

Chapter 3: Results

DISCRIMINATION AND SELF-IDENTIFICATION

Both the procedure and data analysis for this question differed significantly from the original method used in Ezrati-Vinacour et al. (2001) and in Ambrose and Yairi (1994); however, the four age groups used in this study were still analyzed in a similar way. To identify the age at which the fluent children became aware of stuttering-like disfluencies, the means of each age group were determined for the discrimination and self-identification scores. The group means, standard deviations, ranges for the two scores, and percentages of the children who responded 100% correctly are presented in Table 2. As is indicated in Table 2, the mean discrimination scores ranged from .33 at age 3 to 1 at age 7. The range of perfect discrimination extended from 33.33% at age 3 to 66.7% at age 7. A mean was obtained for each age group on the discrimination task; however, this could not be calculated for the self-identification task. This was due to only 1/3 respondents in the 3-year-old group providing a response to the self-identification question. As a result, no mean was obtained for the 3-year-old age group. For this task, the means for the three age groups ranged from 0 to 1 and the percentage correct ranged from 50% to 100%. Due to the limited range of the data collected and differing procedures, any comparison with Ambrose and Yairi (1994) and Ezrati-Vinacour et al. (2001) is significantly compromised and should be interpreted with caution.

Table 2: Group means, standard deviation, ranges of scores, and percentages of children who responded 100% correct for the discrimination subtask.

Age Group	Sample Size	M	SD	Range (max=2)	Percentage
3	n=3	.333	.577	0-2	33.33
4	n=7	.167	.408	0-2	28.6
5	n=3	.5	.707	0-2	33.33
7	n=3	1	0	0-2	66.7

Table 3: Group means, standard deviation, ranges of scores, and percentages of children who responded 100% correct for the identification subtask.

Age Group	Sample Size	M	SD	Range (max=2)	Percentage
3	n=1	N/A (Only 1 response)	N/A (Only 1 response)	0-2	100.00
4	n=6	.5	.548	0-2	50.00
5	n=3	0	0	0-2	0.00
7	n=2	1	0	0-2	100.00

LABELING

To examine the relationship between the labeling of the speech of the disfluent puppet and the age of the children, like Ezrati-Vinacour et al. (2001), a chi-square was used to compare the frequency distribution of the four categories of labeling across the age groups. These values are represented in Table 3. Though labeling was also addressed by Ambrose and Yairi (1994), it was done informally and so formalized results were not able to be compared with the present study or Ezrati-Vinacour et al. (2001). However, the results that they did provide for this task are compared and contrasted in the discussion section.

Table 4: Frequency and percentage of the four answer categories provided by the participants when labeling disfluent speech.

		Labeling				
Age Group	Sample Size	Stutter	Problem related to speech	General Observation	No Response	Total
3	n=3	0 (0.0)	0 (0.0)	0 (0.0)	3 (100.00)	3 (100.00)
4	n=7	0 (0.0)	0 (0.0)	3 (42.9)	4 (57.1)	7 (100.00)
5	n=3	0 (0.0)	2 (66.7)	0 (0.0)	1 (33.3)	3 (100.00)
7	n=3	0 (0.0)	2 (66.7)	0 (0.0)	1 (33.3)	3 (100.0)
Total	n=16	0 (0.0)	4 (25.0)	3 (18.7)	9 (56.3)	16 (100.0)

The chi-square analysis did not yield a significant effect [$\chi^{2\,(6)} = 13.360$; p=.034]; recall, an alpha level of $\underline{\geq}0.001$ was required for significance. Thus, in contrast to the findings reported by Ezrati-Vinacour et al. (2001), results from the present study did not indicate that as the children's age increased their use of either the label stuttering or a description related to a problem of speech also increased. For further analysis, the percentages from the following answer categories were combined with the first being "stutter" and "problem related to speech categories" and the second being "general observation" and "no response." This was done to determine if the ability to label speech as disfluent speech with a speech-related observation increased with age. It was found that 100% of the four year old participants provided a response of either "no response" or a response that was general, but at age five, 66.7% of the participants provided an answer that was speech related. Results identical to the five year old participants were found in the seven year old participants. Similar to Ezrati-Vinacour et al. (2001), it appeared that

the ability to label the source as speech related increased from age four to five and was maintained at age seven.

THE EVALUATION OF STUTTERING

Like Ezrati-Vinacour et al. (2001), three separate analyses were completed to examine the participant's evaluation of stuttering-like disfluencies and the findings of the three evaluation questions. This particular task was not explored in Ambrose and Yairi's (1994) initial study. The first question related to the child's evaluation of the disfluent puppet's speech as good or not good. The frequency of these two categories of evaluation was cross-tabulated with their respective age groups. The results of this analysis are presented in Table 4.

Table 5: The frequency distribution and percentages of the fluent and disfluent friend responses by age.

Age Group	Sample Size	Good	Not good	Total
3	n=2	0 (0.0)	2 (100.0)	2 (100.0)
4	n=6	3 (50.0)	3 (50.0)	6 (100.0)
5	n=3	2 (66.7)	1 (33.3)	3 (100.0)
7	n=3	0 (0.0)	3 (100.0)	3 (100.0)

The results of the chi-square analysis did not reveal a significant effect [$\chi^{2\ (3)}$ = 4.563; p=0.207]. This result indicates that the children did not demonstrate a negative evaluation of disfluency as their age increased. Two other dissimilar patterns were also observed with the first being that there was not a sharp increase in negative evaluation

between any age groups. However, it was observed that these evaluations varied across age groups. For instance, the 3-year-old participants were more likely to evaluate the speech as not good, while the majority of the four year olds evaluated it as good. The second additional difference was that two of the participants did not provide an answer to this question. In the Ezrati-Vinacour et al. (2001) study there was no report of children not responding, and therefore was not included as a response option. This issue will be further explored in the discussion section.

The last question the children were asked required that they choose which puppet they wanted as a friend. Like the previous question, their responses were compiled into a frequency distribution with the two categories being "Fluent" and "Disfluent." Table 5 presents both the frequencies and percentages of each answer choice.

Table 6: The frequency distribution and percentages of the fluent and disfluent friend responses by age.

Age Group	Sample Size	Fluent	Disfluent	Total
3	n=2	2 (100.0)	0 (0.0)	2 (100.0)
4	n=4	1 (25.0)	3 (75.0)	4 (100.0)
5	n=3	0 (0.0)	3 (100.0)	3 (100.0)
7	n=3	2 (66.7)	1 (33.3)	3 (100.0)

A chi-square was performed to determine if there was a significant difference in any of the age groups in terms of whether they selected the fluent over the disfluent puppet. The chi-square test value, [$\chi^{2\,(3)} = 6.171$; $p=0.104$] did not reveal a significant

effect. Therefore, unlike the findings reported by Ezrati-Vinacour et al. (2001) results did not indicate that as children grew older they were more likely to select the fluent puppet as their friend. For instance, both the 3 and 7-year-old groups demonstrated a preference towards selecting the fluent puppet; however, both the 4 and 5-year-old groups demonstrated preference for the disfluent puppet.

In addition, to making a playmate preference, the children were also asked to give a reason for their choice of friend. Their responses were divided into speech and nonspeech reasons and cross-tabulated with the participant's respective age groups. The results are presented in Table 6. For data analysis purposes, only the responses for the children who selected the fluent puppet as a friend were used.

Table 7: The frequency distribution and percentages of speech and nonspeech reasons by age in the group of children who selected the fluent puppet as a friend.

Age Group	Sample Size	Speech Reason	Nonspeech Reason	Total
3	n=2	1 (50.0)	1 (50.0)	2 (100.0)
4	n=1	1 (100.0)	0 (0.0)	1 (100.0)
7	n=2	1 (50.0)	1 (50.0)	2 (100.0)

A chi-square test was performed to determine if children gave a speech reason for their friend selection as their age increased. This analysis did not reveal a significant effect [$\chi^{2\ (2)}$ = .833; p=.659]. Given the limited amount of participants that chose the fluent puppet (5/12), and the evenly distributed reasons for nearly all three age groups, it

is possible that no age group showed a preference towards the fluent puppet or selected this puppet based on a speech reason. These results directly differ from those obtained by Ezrati-Vinacour (2001). In their study, it was found that after age five 5, children were most likely to select the fluent puppet as a playmate based on speech reasons.

A final procedure was performed to assess whether evaluation of stuttering became more negative with an increase in awareness. To determine if awareness and evaluation were correlated, the self-identification and discrimination questions were combined to form an awareness score that ranged from 0-2. The following two evaluation questions were combined to form an evaluation score: 1) evaluation of the puppet's speech as good/not good, and 2) the choice of which puppet to play with. Like the awareness score, this score also ranged from 0-2. A maximum negative evaluation score was 2 and was determined from whether the child evaluated the speech as not good and chose the fluent puppet as their playmate. A minimum negative evaluation score was determined using an opposite criterion. Some participants received a medium negative evaluation score when one of their responses was negative and one was positive. In contrast to the study by Ezrati-Vinacour et al. (2001), in the present study the individual scores were combined rather than the means. Thus, the data was considered to be non-continuous in nature. Therefore, rather than using the parametric Pearson Product Moment Correlation Coefficient as was used by Ezrati-Vinacour and colleagues (2001), the nonparametric Spearman Rho analysis was performed to determine the correlation between the awareness and the evaluation score. The Spearman Rho correlation was $\rho=.440$, $p>.001$, indicating a mild positive relationship between awareness and negative

evaluation. Since this relationship is not very strong, it should be interpreted with caution. However, it may indicate that as children become more aware, their evaluation of stuttering becomes more negative. Although a Pearson correlation was used by Ezrati-Vinacour (2001), their correlation coefficient also represented a mild positive relationship between awareness and negative evaluation.

Chapter 4: Discussion

The present study was an extension of previous studies conducted by Ambrose and Yairi (1994) in the US and Ezrati-Vinacour, Platzky, and Yairi (2001) in Israel. Like those studies, it was aimed at studying the development of awareness and perceptual abilities in fluent children between the ages of three and seven using question responses from a video sample presentation. Unlike those studies, the purpose was twofold (1) to investigate the awareness and perception of stuttering for American children age 3 to 7 from diverse cultures (2) to compare those to findings of awareness and perception of stuttering for children from Israel and America. To review, results from the present study suggest that children as young as age three demonstrate awareness of disfluent speech.

Upon closer examination, it was found that by age 7, children were the most accurate in both discriminating and identifying disfluent speech. However, across all age groups, children were more accurate when discriminating between fluent and disfluent speech than identifying it. Results further revealed that when asked to label disfluent speech, the majority of the children (over 50%) provided an answer of "no response." In addition, when asked to evaluate disfluent speech, CWNS did not demonstrate a more negative perception of either the disfluent puppet's speech or a playmate preference as they increased in age. These findings will be compared with the findings and trends observed in the studies conducted by Ambrose and Yairi (1994) and Ezrati-Vinacour and colleagues (2001). See Table 8 for a side by side comparison of each study and related experimental tasks. Such comparison will allow for better understanding of the

awareness and perception of stuttering in young children and will also allow for initial exploration of any cross-cultural differences or similarities.

Table 8: Comparison of the formal (F) and informal (I) experimental tasks that were or were not used across the present study, Ambrose and Yairi (1994), and Ezrati-Vinacour et al. (2001).

Study	Awareness		Labeling	Evaluation		
	Discrimination between disfluent and fluent puppet	Self-Identification with either fluent or disfluent puppet	Labeling disfluent speech of puppet	Subtask 1*	Subtask 2*	Subtask 3*
Ambrose and Yairi (1994)	No	Yes (F)	Yes (I)	No	No	No
Ezrati-Vinacour (2001)	Yes (F)	Yes (F)	Yes (F)	Yes (F)	Yes (F)	Yes (F)
Present Study	Yes (F)	Yes (F)	Yes (F)	Yes (F)	Yes (F)	Yes (F)

*The evaluation subtasks were as follows: (1) determine if disfluent speech was good/not good, (2) selection of either the disfluent or fluent puppet as a playmate and (3) explanation of playmate preference.

DISCRIMINATION AND SELF-IDENTIFICATION

The first experimental task examined awareness by having the participants discriminate between speech (fluent and disfluent) and identify with the puppet who spoke like them. As mentioned previously, the procedure and data analysis used in the present study for these two questions in particular significantly differed from both the Ambrose and Yairi (1994) and Ezrati-Vinacour et al. (2001) study. The principal difference was that the discrimination and self-identification questions were only asked

one time versus the six times they were asked in both of the aforementioned studies. The results from the discrimination and self-identification task revealed four key findings.

The first and second findings were both related to the initial and accurate development of awareness. First, awareness of stuttering-like disfluencies was found to develop in children as young as three in the present study. Thirty-three point three percent of the 3-year-olds in the present study discriminated and self-identified accurately between fluent and disfluent speech. These findings support those of both Ambrose and Yairi (1994) and Ezrati-Vinacour et al. (2001) who both found the presence of some awareness in children as young as three. However, unlike those studies, results from the present study did not indicate that awareness increased with age. This trend may not have been found due to a limited sample size when compared with the other studies, which included 36 and 79 participants respectively.

The second key finding related to the awareness subtask (discrimination and self-identification task) was that by age seven, children appear to demonstrate the most accurate awareness. In Ezrati-Vinacour et al. (2001) and the present study, awareness was defined as both accurately discriminating and self-identifying, while in Ambrose and Yairi (1994), awareness was only defined as accurately self-identifying. Like Ambrose and Yairi (1994) and Ezrati-Vinacour et al. (2001), results from the present study indicated that children became more accurate at self-identifying at age five, with increased accuracy noted at age seven. However, both of these results, while similar to the previous studies could also be unique to the participants in the present study and their experiences.

For both the aforementioned results, it could be reasoned that awareness may not actually increase with age in all children. Awareness itself could depend on experiential influences. For instance, children's awareness of disfluent speech may depend on how much exposure they have to it. For instance, the four-year-old group showed more accurate awareness versus the five year old age group. In this sense, development of awareness may actually be unique to an individual child. On the other hand, the similar results across all three studies regarding the presence of awareness in young children may indicate that the development of awareness is universal. That is, culture may not significantly influence the development of awareness, at least for young children.

Similar to the first and second key findings, the third and fourth findings of the discrimination and self-identification tasks were also related. The third key finding was that fewer children provided a response for the self-identification task when compared to the discrimination subtask. In the discrimination subtask, all 16 participants gave an answer while only 12 gave a response for the identification subtask. By comparison, all participants in both Ezrati-Vinacour et al. (2001) and Ambrose and Yairi (1994) completed the self-identification task.

Despite lower participation in the self-identification subtask, three out of the four age groups answered it more accurately than the discrimination subtask. Accuracy comparisons were determined by comparing each age group's discrimination percentage accuracy and comparing it with the corresponding self-identification percentage accuracy. For example, the 4-year-old age group answered the discrimination subtask with 28.6% accuracy versus the 50% accuracy they demonstrated on the self-

identification subtask. This comparison was not possible to determine from the results of Ambrose and Yairi (1994) because they did not ask a question that specifically pertained to discrimination. However, it was possible with the Ezrati-Vinacour et al. (2001) study, with their participants demonstrating similar discrimination and self-identification accuracy. This seems to suggest that these skills emerged simultaneously, at least for their participants. While different, findings from the present study and that of Ezrati-Vinacour et al. (2001) appear to contradict developmental literature that has found that discrimination skills typically precede self-identification skills (Aungst & Frick, 1964).

The last key finding was reduced participation in the self-identification question. This may have been a reflection of the participants' abilities. For instance, the children may have actually found the self-identification question more difficult than the discrimination question because it required them to apply it to themselves, rather than just passively label the different speech types. In contrast to the present study Ezrati-Vinacour et al. (2001) did not indicate if they discarded children's responses if they gave an answer of "no response." Therefore, it is unknown how many total participants they may have had if they had included these children or if a similar number would have provided a "no response" answer as in the present study. In addition, Ezrati-Vinacour et al. (2001) did not provide the group number that responded to each question or indicate how they dealt with an answer of "no response."Thus, it is unknown whether they had less children respond to this question as well.

Similar levels of accuracy in the discrimination and self-identification subtasks in Ezrati-Vinacour et al. (2001) may not have been observed in the present study due to

disproportionate amount of participants that completed each subtask. Since the majority of the participants who responded to the self-identification question answered it correctly, it appears likely that the participants who provided a "no response" may have also guessed with the discrimination question. As a result, their participation in the discrimination subtask could have lowered the percentage accuracy and their non-participation in the self-identification subtask could have increased the percentage accuracy. Therefore, it could be reasoned that if they had either not participated in either question or participated in the self-identification question, then the percentage accuracy for both subtasks would have been more similar. A follow-up study would need to be conducted to determine whether the results from Ezrati-Vinacour et al. (2001) or the trends found in the present study are consistent and reflective of typical development.

Use of One versus Six Sets of Questions

The principal difference between the present study and that of both Ezrati-Vinacour et al. (2001) and Ambrose and Yairi (1994) in respect to the discrimination and self-identification subtasks was the presentation of two versus six questions. In both of the aforementioned studies, each child was given six opportunities to either identify the puppet who talked like them and/or to indicate whether the puppets talked the same. A problem with the use of multiple questions is that a learning curve may have resulted from the presentation of the questions six times. Answering the same question multiple times may have resulted in the children having more time to recognize any apparent differences that they would not have otherwise noted. This learning curve may have been further facilitated by the pausing of the video after each sentence pair, as the participants

may have been given more temporal opportunity to examine and identify potential differences. The presentation of the questions only one time, as was the case in the present study, may have reflected the child's actual awareness. Such presentation at least avoided any potential learning effect that likely occurs when the questions are presented more than once. Nevertheless, given that many of the obtained results were similar to both Ezrati-Vinacour et al. and Ambrose and Yairi, the presentation of the questions once may be as valid as the presentation of the questions six times. However, it would not be possible to confirm this hypothesis without completing another study that directly investigated the influence of varying the number of presentations of the two questions.

Despite the benefits of a single question presentation, there was a significant drawback and critical area that could not be examined as a result of the presentation that was explored in Ezrati-Vinacour et al. (2001). Since there was only one presentation of these questions, despite the presentation of different types of disfluencies in each of the stimuli sentences, an analysis looking at the potential influence of each type of disfluency on awareness was not made possible. The single question set presentation in affect had the child evaluate all six of the sentences collectively rather than individually. For that reason, if understanding a child's reaction to a specific disfluency were preferred, then a six-question presentation may be more desirable. However, if understanding how a child reacts to and evaluates disfluent speech as a whole were desired, then a single question set would still be more advantageous.

Test-Retest Reliability

The responses on the discrimination and self-identification subtasks had low test-retest reliability. Several key issues may have specifically compromised the reliability of these subtasks. First, it appeared that many of the children provided drastically different answers from the initial presentation compared to the re-test presentation. For instance, some of the children discriminated correctly and then self-identified incorrectly in the initial presentation, and then performed exactly the opposite in the re-testing. This may indicate that many of the children chose randomly, perhaps because of difficulty distinguishing either between the speech of the two puppets or the puppets themselves. It is possible that the use of identical puppets may have made it more difficult for the children to remember which puppet was disfluent or fluent. The children may also have chosen randomly due to limited overall awareness. Another possibility is that the children may have been unable to relate their own speech to either puppet, which in turn resulted in random selection when completing the self-identification subtask.

The second concern with the test-retest reliability is three-fold, and arose from the initial development by Ambrose and Yairi (1994) of the self-identification subtask. First off, the self-identification subtask was only pilot-tested for test-retest reliability by Ambrose and Yairi (1994) with fluent and disfluent children between the ages of 6-10. However, since this task was never tested for reliability with exclusively fluent children or children younger than age 6, from the start it was not determined to be a reliable task for preschool-aged children. Hence, the low test-retest reliability found in the present study may have been related to the task not initially being determined to be reliable for the 3, 4, and 5-year-old age groups. Secondly, Ambrose and Yairi (1994) only initially

developed a self-identification task and therefore a discrimination subtask was never pilot-tested as being reliable. To address the second issue, while developing the sub-task Ambrose and Yairi (1994) relied on the assumption that if the child could identify with the correct puppet then they could also distinguish between the speech of either puppet. Based on this assumption, they did not establish reliability for a discrimination subtask. Consequently, it is not known if this task was ever reliable for any age group. Lastly, Ambrose and Yairi (1994) only established a reliability of .59 for the self-identification subtask. They reasoned that this number was acceptable for the following reasons: the age of the subjects, the fact that a random response was a valid answer, and that awareness could fluctuate. As a result, it could be reasoned that even from the beginning, the self-identification subtask was not established as a very reliable measure of awareness. Future research should focus on developing an awareness task that addresses not only the target age groups it was developed for but also establishes higher test-retest reliability for all tasks during the pilot study.

LABELING

The administration of the labeling subtask in the present study was identical to that in Ezrati-Vinacour et al. (2001) and Ambrose and Yairi (1994); however, this task was only informally assessed in the latter study. That is, across all three studies the children were asked to label or describe the speech of the disfluent puppet, but it was only included in the formal analysis for the present study and that of Ezrati-Vinacour et al. The principal difference between this study and Ezrati-Vinacour et al. (2001) involved how the children's responses were interpreted. Similar to Ezrati-Vinacour et al. (2001) the

responses were classified into four categories which included stuttering, a problem related to speech, general observation and no response. Hence, the categories used in the present study differed slightly and instead of a general problem category, a general observation category was included. This category was changed in the present study because most of the children provided neutral responses that reflected more of an observation and not a critique of the puppet's speech. These included responses such as "puppet speech" or "manager talking." In Ezrati-Vinacour et al.'s study no explanation was provided for how the categories were determined or what constituted a valid response for each category. As a result, the children's responses could have been incorrectly or subjectively categorized. For example, if a child provided an answer like "manager talking," this could have been interpreted as a problem related to speech or a critique when in fact it was simply an observation. Nevertheless, despite these differences in answer classification, the results were found to be similar to the formal results of Ezrati-Vinacour et al. (2001) and the informal results of Ambrose and Yairi (1994). The most frequent response was "I don't know. When a child was able to provide a response, the most common description was "puppet talking". These results were consistent with Ambrose and Yairi (1994) and Ezrati-Vinacour et al. (2001) across the majority of participants. Over 50% across all age groups of participants in each study provided an answer of "no response." These findings indicate that most children between the ages of 3-7 do not provide a label for disfluent speech when presented with nearly identical experimental stimuli.

Although the labeling task yielded similar results, a pattern of differences among these three studies was noted in the evaluation subtasks. The present study indicates that children up to age 7 have difficulty labeling disfluent speech. What is more revealing is that these children all demonstrated typical speech and language development, which could indicate that the ability to label speech metalinguistically is a skill that develops at a later age than 7 in typically developing children. Since the results in the present study did indicate some objective responses in both 5 and 7-year-old participants, this could illustrate the initial development of this skill. This may be a particularly difficult task because it requires a child to use language to describe language. Difficulty with that ability could also be related and dependent on a child's experiences, as the less time or experiences a child has had with disfluent speech, the less likely he/she will be able to describe it as something unique or different. This makes sense, as it is often difficult to describe novel experiences without the exposure to vocabulary associated with the experience.

THE EVALUATION OF STUTTERING

Unlike the awareness and labeling subtasks, less similarities were found between Ezrati-Vinacour (2001) and the present study when the children were asked to evaluate the disfluent speech. It is important to note that the evaluation task was not addressed in Ambrose and Yairi (1994); thus, the results related to this task from the present study will only be compared to those reported in the study by Ezrati-Vinacour et al. (2001). Negative evaluation was defined by either labeling disfluent speech as "not good," indicating a playmate preference for the fluent puppet and if the fluent puppet was

selected, then providing a speech reason for the selection. In Ezrati-Vinacour et al. (2001) they found across all three subtasks (i.e., 1.) good or not good evaluation of disfluent speech; 2.) disfluent or fluent puppet playmate preference; 3.) speech or nonspeech playmate preference reason), that as children got older they developed a more negative evaluation of disfluent speech. This shift in evaluation occurred at age five across all of the questions. In contrast, no statistically significant trends were observed in the present study. The lack of a significant trend may have been due to the children responding randomly. Across all of the age groups there was not a consistent positive or negative response pattern. In addition, even the frequency distribution itself did not demonstrate a shift from a positive to a negative evaluation at any age, which was also an effect of a random response pattern. However, this random response pattern may have also been the result of the dichotomous nature of the answer categories.

The primary cause for concern within two of the evaluation subtasks (i.e, good or not good evaluation of disfluent speech and disfluent or fluent puppet playmate preference) was the reliability of the responses due to the dichotomous nature of the answer categories. Since there were only two answer options included in the data analysis, the results may have been a reflection of random guessing rather than true evaluation. Both of these subtasks presented the participant with the answer options, so the child may have just answered with what they heard first or remembered last. This may have been why 12 (from the initial presentation) and 14 (from the retest presentation) of the participants provided answers to the first subtask (i.e., good or not good evaluation of disfluent speech) and second subtask (i.e., disfluent or fluent puppet

playmate preference) respectively, as opposed to the reduced participation in the discrimination and labeling subtasks. One main difference between these two evaluation subtasks and the discrimination and labeling subtasks was that the evaluation questions were presented in a leading format. In the evaluation of disfluent speech as good or not good subtask and the preference of fluent or disfluent puppet playmate subtask, the participants were presented with a prompt, such as "would you call this type of talking good or not good" as was used in the first evaluation subtask. It could be suggested that reformulating the questions to a more open-ended prompt in the evaluation subtasks, would reduce the possibility of random responses. For example, instead of asking, "would you call this type of talking good or not good", the question could be presented similarly except that happy and sad faces could be used for the child to select their answer. This may reduce the possibility that the child's answer be based on the examiner's presentation of the answer choices.

Despite the possibility of randomized responses, the test-retest reliability was much higher for the evaluation subtasks, which suggests that the children were consistent when answering these questions. This answer consistency may also illustrate that the child retained the same answer choice when presented with the subtask questions, even a second time. While randomized responses could account for the lack of a significant negative or positive trend, it could also be the result of opinions of the children in the study themselves. The opinions of the children themselves is particularly important to look at within the playmate preference subtask, in which the child selected their desired

playmate between the fluent and disfluent puppet, as it can provide insight into how stuttering may affect social relationships.

Playmate Preference

Several studies (Nabors, 1997; Ezrati-Vinacour et al., 2001; Hartford &Leahy 2007; Evans, Healey, Kawai, &Rowland, 2008) have examined playmate or friend preference for disfluent speakers across the age span. The results of these studies are conflicting. Both Nabors (1997) and Ezrati-Vinacour et al. (2001) found that young children (ages 3-5) demonstrated a preference towards typically developing peers or fluency in their playmates. Despite this finding, a different study conducted by Hartford and Leahy (2007) with similarly aged participants found that they did not indicate such a playmate preference. In fact, the results suggested that children younger than five may actually demonstrate less negativity toward stuttering. In terms of younger participants between the ages of 5, the present study offered results that were consistent with both studies. For instance, like Hartford and Leahy (2007), results revealed that both 4-5-year-old children did not demonstrate a preference for a fluent playmate. However, like Nabors (1997) results, it also revealed that 3-year-old children demonstrated a preference towards a fluent playmate, and like Ezrati-Vinacour et al. (2001) that 7-year-old children demonstrate the same preference. Despite these contradictory findings, the present study did demonstrate results that were consistent with the previous studies and may also suggest that children's opinions about stuttering and social relationships may be variable. It may also indicate that there is not necessarily an age-related trend in fluent playmate preference, but rather at certain ages children may hold particular preferences in

playmates, such as speech that is not different from their own.. This could be related to their different experiences at these different ages. For instance, at age 3, a child may enter preschool and encounter for the first time other children and adults who may be different from members of their own family. As a result, if they have not been previously exposed to disfluent speech, they may still hold a preference for what is known. In contrast, children between the ages of 4-5 may not demonstrate the same preference because at these ages they have become acclimated to the preschool setting, and, therefore, differences in others may not be as noticeable or they may be used to them.

The shift at age 7 may be due to an environmental change, like at age 3. Children at this age are now in elementary school and as a result may be surrounded with a new set of both academic and cultural experiences. Thus, they may also be exposed to more differences in other children or adults than they are used to. While the present study did not go beyond this age, it is not known whether children may continue to form preferences towards fluent or typically developing friends or become more tolerant of differences. However, one study conducted by Evans, Healey, Kawai, and Rowland (2008) may provide insight on playmate preference development.

In the study conducted by Evans et al. (2008), 64 middle school students, ranging in age from 10 to 14 years answered affective statements, which concerned whether they would be friends with a disfluent student. Results appear to indicate that middle school students may be more tolerant of disfluencies and this may not affect their willingness to have the student as a friend. Thus, this study provides an optimistic view on the impact of adolescent perception of stuttering on friend selection. This study could indicate that

as students get older, much like the 4-5-year-olds in the present study, they become more tolerate or accustomed to speech differences that may be present in their peers, and this does not affect their willingness to have this person as their friend.

Overall, both the present and previous studies provide insight into the development of playmate preferences. Alone, the results of Ezrati-Vinacour et al. (2001) may have indicated the presence of an age related trend in playmate preference in typically developing children. However, in conjunction with the results of other studies, the present study may indicate that playmate/friend preference is not age-related but rather more environmentally related. In addition, it may be related to both environment and changes at particular ages such as when a child begins preschool or elementary school. It is also possible that perceptions and awareness may be culturally related.

CULTURAL DIVERSITY

A major limitation of the present study was the limited sample size; however, of equal concern was the lack of cultural diversity in the participants as both factors greatly affected the generalization of the results. To better understand why a limited cultural representation was obtained, it is necessary to look at the methodologies that were used to recruit participants in the present study, as well as to discuss different ways that diverse cultural groups should be contacted to facilitate future success in obtaining participants that are more diverse.

In the present study, participants were primarily solicited through the distribution of a consent form at the UT Child Development Center either by their teacher or through a mass email that targeted graduate students at the University of Texas San Antonio

(UTSA). The UT Child Development Center and UTSA were selected as recruitment sites because both have culturally diverse populations. UTSA for example is one the nation's foremost Hispanic serving institutes. The UT Child Development Center primarily serves children whose parents are UT faculty and staff and any of these persons reportedly come from diverse groups. However, despite this concerted effort to obtain participants from diverse cultural groups with the exception of one Asian-American participant, only parents from Middle-Class Anglo-American culture responded and gave consent for their children to participate. It could be reasoned then that the methods used in this study all targeted one cultural group. The wording of the consent form or the email may have been at a level that was more accessible to an Anglo-American culture and may not have been culturally sensitive. In addition, the methodologies used could have also been too formalized and may have lacked the intimacy necessary to establish cross-cultural trust in the researcher's purpose for the study. As a result, the parents who did not provide consent may not have felt comfortable enough to trust the researchers to conduct the study with their child. To better control for this confounding factor in future research, it may be necessary to pilot different types of consent form wordings or formats to see which one would obtain the most responses from people of different cultures. It may also be necessary to develop different variations of the same consent form to distribute to different cultural groups. For example, a particular type of wording or format for a consent form may work best for the Hispanic population, but not for an Asian American population. Overall, even though the lack of cultural diversity in the participants recruited was disappointing, the resulting participant pool was similar to the

participants in both the studies conducted by Ambrose and Yairi (1994) and Ezrati-Vinacour et al. (2001).

The children surveyed in the present study were similar to the participants used in both Ambrose and Yairi (1994) and Ezrati-Vinacour et al. (2001) based primarily on where they were recruited from. In Ezrati-Vinacour et al.'s study, they indicated that the children primarily came from a middle class background. In addition, given that Tel Aviv is the most westernized city in Israel, it could also be the most similar to our Anglo-American culture in this country. The children in Ambrose and Yairi's study also came from a similar background to both the present study and that of Ezrati-Vinacour et al. (2001). Not only did most children come from a child development center at the University of Illinois, but they were also identified as being from a middle-class population. Thus, it could be reasoned that the tendency to participate in this type of study is culturally biased. It is apparent that the methodologies need to be readjusted in order to better ensure the participation of more culturally diverse children in future similar studies.

While the participants were culturally similar to those used in both Ambrose and Yairi (1994) and Ezrati-Vinacour et al. (2001), which may have accounted for some similarities in the results, it may be reasoned , that cultural development may only be able to be observed in older children. That is, cultural influence may have a development similar to what was observed in playmate preference, in that culture influences may only come into play as the child gets older and becomes more aware of differences between their cultural and others. For instance, when children are younger, they may stay only at

home, or be around children only of a similar culture. Thus, their beliefs may be a result of this homogenous cultural experience and they may not recognize or notice differences as readily. Young children between the ages of 3-4 may not be influenced by culture until they become older. It may be that only when they are older are they able to conceptualize their beliefs and evaluate others, and specifically fluency objectively.

CLOSING REMARKS

In conclusion, the results of the present study indicated that children as young as three demonstrated both accurate discrimination and self-identification (i.e., awareness) of disfluent speech. However, this awareness was the most accurate at 7 years of age. Since these results were similar to Ezrati-Vinacour et al. (2001) and Ambrose and Yairi (1994), it appears that awareness of disfluent speech can develop in preschool children as young as three. When labeling disfluent speech, children in the present study were most likely to label either with "no response" or with a "general observation" about the speech of the puppet. This particular task required the most subjective interpretation. The results of the evaluation subtask differed principally from the Ezrati-Vinacour et al. (2001) study because it did not reveal a trend related to increasing age and negative perception. However, this may have been due to limiting the responses to two answer choices for the evaluation of disfluent speech and playmate preference (i.e, good or not good and fluent or disfluent playmate). The trend may not have been present also due to the possibility of the child randomly selecting an answer choice, since the question format presented both answer choices. Lastly, despite the concerted effort to recruit participants from different cultures, the limited resulting cultural representation may

indicate that more culturally sensitive contact approaches may need to be implemented to enlist participants who are more diverse.

Given that the present study found that older children demonstrated the most accurate awareness, and that cultural identity may not develop until a child is older, future research related to the awareness and perception of disfluent speech should be conducted with a school age population between the ages of 5-10. These age groups would be more advantageous for conducting research to look at the development of awareness and perception of stuttering, as well as to consider culture being a more realistic factor. Children who are older not only possess these abilities but also tend to be less culturally insulated as they are exposed to more diverse cultural experiences either through television, school, and other art forms. These different cultural influences may affect older children's opinions in a negative manner, in which they use their own culture as a template to evaluate other cultures. On the other hand, such exposures could affect a child's opinion in a more differential manner, in which they gain multiple cultural viewpoints and therefore different sources for evaluation. In closing, the development of playmate preference also provided some surprising implications that could mirror the role a child's culture plays in their perceptions. In both cases, rather than an age-related developmental pattern, children's awareness and perceptions may actually be shaped by environmental differences, which in turn also shape or form their cultural beliefs.

Appendices

Subject Number: 03-01
Age: 3;4
Date: 11/26/08
School: UTCDC
Class/Teacher: Rainbows

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

__+__ **25 dB** (under 5 years of age)
_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

_9_ Comprehension
_6_ Repetition
14 Identification
24 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	***Fluent***	Disfluent	?
3) What do you call this type of talking? ? (pointing to disfluent puppet) ***"you"***	Stg	Speech	***Other***
4) And this type? ? (pointing to fluent puppet) ***"me"***	Stg	Speech	***Other***

Evaluation task

5) Is that talking good or not good?	Good	***Not good***	
6) Which one would you like to play with?	***Fluent***	Disfluent	?

7) Why?	***Speech***	Other	?
"because him talks quickly"			

----------Retest Data Collection

(12/10/08)

Discrimination, Identification, Labeling tasks

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	***Fluent***	Disfluent	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ***?***	Stg	Speech	Other

Evaluation tasks

5) Is that talking good or not good?	Good	***Not good***	?
6) Which one would you like to play with?	***Fluent***	Disfluent	?
7) Why? ***"because he talks nice"***	***Speech***	Other	?

Subject Number: 03-02
Age: 3;3
Date: 11/26/08
School: UTCDC
Class/Teacher: Rainbows

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

_+_ **25 dB** (under 5 years of age)
_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

8 Comprehension
10 Repetition
11 Identification
25 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	Yes	***No***	?
2) Which puppet talks like you?	Fluent	Disfluent	***?***
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ? (pointing to fluent puppet) ***"my type"***	Stg	Speech	***Other***

Evaluation task

5) Is that talking good or not good?	Good	***Not good***	
6) Which one would you like to play with?	***Fluent***	Disfluent	?
7) Why? ***"because I want him to get that little bottle"***	Speech	***Other***	?

----------Retest Data Collection

(12/10/08)

Discrimination, Identification, Labeling tasks

1) Do the puppets talk the same way?	Yes	***No***	?
2) Which puppet talks like you?	***Fluent***	Disfluent	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ? ***"my talking"***	Stg	***Speech***	Other

Evaluation tasks

5) Is that talking good or not good?	Good	***Not good***	?
6) Which one would you like to play with?	***Fluent***	Disfluent	?
7) Why? ***"because he talks like me"***	***Speech***	Other	?

Subject Number: 03-03
Age: 3;10
Date: 11/26/08
School: UTCDC
Class/Teacher: Rainbows

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

_+_ **25 dB** (under 5 years of age)
_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

10 Comprehension
9 Repetition
13 Identification
27 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	Fluent	Disfluent	***?***
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ***?*** (pointing to fluent puppet)	Stg	Speech	Other

Evaluation task

5) Is that talking good or not good?	Good	Not good	***?***
6) Which one would you like to play with?	Fluent	Disfluent	***?***
7) Why?	Speech	Other	***?***

No retest data was collected for participant 03-03.

Subject Number: 03-04
Age: 3;3
Date: 12/10/08
School: UTCDC
Class/Teacher: Rainbows

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

__+__ **25 dB** (under 5 years of age)

_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	X	X	X
Left ear	X	X	X

Data collection was discontinued because the participant did not pass the binaural hearing screening at any of the three frequencies for either ear.

Subject Number: 04-01
Age: 4;0
Date: 11/26/08
School: UTCDC
Class/Teacher: Rainbows

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

_+_ **25 dB** (under 5 years of age)
_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

9 Comprehension
10 Repetition
13 Identification
28 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	Yes	***No***	?
2) Which puppet talks like you?	Fluent	Disfluent	***?***
3) What do you call this type of talking? ? (pointing to disfluent puppet) ***"manager talking"***	Stg	Speech	***Other***
4) And this type? ? (pointing to fluent puppet) ***"monster talking***	Stg	Speech	***Other***

Evaluation task

5) Is that talking good or not good?	***Good***	Not good	
6) Which one would you like to play with?	Fluent	Disfluent	***?***
7) Why?	Speech	Other	***?***

No retest data was collected for participant 04-01.

Subject Number: 04-02
Age: 4;10
Date: 11/25/08
School: UTCDC
Class/Teacher: Leaping Frogs

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

_+_ **25 dB** (under 5 years of age)
_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

10 Comprehension
10 Repetition
15 Identification
30 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	Fluent	***Disfluent***	?
3) What do you call this type of talking? ? (pointing to disfluent puppet) ***"seal talking"***	Stg	Speech	***Other***
4) And this type? ? (pointing to fluent puppet) ***"seal talking"***	Stg	Speech	***Other***

Evaluation task

5) Is that talking good or not good?	***Good***	Not good	
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why? ***"it's the one that talks like me"***	***Speech***	Other	?

----------Retest Data Collection

(12/10/08)

Discrimination, Identification, Labeling tasks

1) Do the puppets talk the same way?	Yes	***No***	?
2) Which puppet talks like you?	Fluent	***Disfluent***	?
3) What do you call this type of talking? ? (pointing to disfluent puppet) ***"seal talking"***	Stg	Speech	***Other***
4) And this type? ? ***"seal talking"***	Stg	Speech	***Other***

Evaluation tasks

5) Is that talking good or not good?	***Good***	Not good	?
6) Which one would you like to play with?	Fluent	Disfluent	***?***
7) Why? ***"because they both talk like me"***	***Speech***	Other	?

Subject Number: 04-03
Age: 4;10
Date: 11/25/08
School: UTCDC
Class/Teacher: Leaping Frogs

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

_+_ **25 dB** (under 5 years of age)
_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

10 Comprehension
10 Repetition
15 Identification
30 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	***Fluent***	Disfluent	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ? (pointing to fluent puppet) ***"maybe it helps people"***	Stg	Speech	***Other***

Evaluation task

5) Is that talking good or not good?	Good	***Not good***	
6) Which one would you like to play with?	***Fluent***	Disfluent	?
7) Why? ***"because I want to"***	Speech	***Other***	?

----------Retest Data Collection

(12/10/08)

Discrimination, Identification, Labeling tasks

1) Do the puppets talk the same way?	Yes	***No***	?
2) Which puppet talks like you?	***Fluent***	Disfluent	?
3) What do you call this type of talking? ? (pointing to disfluent puppet) ***"bad talking"***	Stg	***Speech***	Other
4) And this type? ? ***"good talking"***	Stg	***Speech***	Other

Evaluation tasks

5) Is that talking good or not good?	Good	***Not good***	?
6) Which one would you like to play with?	***Fluent***	Disfluent	?
7) Why? ***"cause it talks good"***	***Speech***	Other	?

Subject Number: 04-04
Age: 4;12
Date: 11/25/08
School: UTCDC
Class/Teacher: Leaping Frogs

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

_+_ **25 dB** (under 5 years of age)
_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

10 Comprehension
10 Repetition
15 Identification
30 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	Yes	***No***	?
2) Which puppet talks like you?	Fluent	***Disfluent***	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ***?*** (pointing to fluent puppet)	Stg	Speech	Other

Evaluation task

5) Is that talking good or not good?	Good	***Not good***	
6) Which one would you like to play with?	Fluent	Disfluent	***?***
7) Why? ***"cause they both look fun"***	Speech	***Other***	?

----------Retest Data Collection
(12/10/08)

Discrimination, Identification, Labeling tasks

1) Do the puppets talk the same way?	Yes	***No***	?
2) Which puppet talks like you?	Fluent	***Disfluent***	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ***?***	Stg	Speech	Other

Evaluation tasks

5) Is that talking good or not good?	***Good***	Not good	?
6) Which one would you like to play with?	Fluent	Disfluent	***?***
7) Why? ***"cause they both look fun"***	Speech	***Other***	?

Subject Number: 04-05
Age: 4;6
Date: 11/25/08
School: UTCDC
Class/Teacher: Explorers

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

_+_ **25 dB** (under 5 years of age)
_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

9 Comprehension
9 Repetition
15 Identification
28 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	***Fluent***	Disfluent	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ? (pointing to fluent puppet) ***"talking like me"***	Stg	***Speech***	Other

Evaluation task

5) Is that talking good or not good?	Good	***Not good***	
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why?	Speech	Other	***?***

----------Retest Data Collection
(12/10/08)

Discrimination, Identification, Labeling tasks

1) Do the puppets talk the same way?	Yes	***No***	?
2) Which puppet talks like you?	Fluent	***Disfluent***	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ***?***	Stg	Speech	Other

Evaluation tasks

5) Is that talking good or not good?	***Good***	Not good	?
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why?	Speech	Other	***?***

Subject Number: 04-06
Age: 4;3
Date: 12/23/2008
School: Home-Schooled
Class/Teacher: N/A

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

_+_ **25 dB** (under 5 years of age)
_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

_10_ Comprehension
_10_ Repetition
_15_ Identification
_21_ Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	*Fluent*	**Disfluent**	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? **?** (pointing to fluent puppet)	Stg	*Speech*	Other

Evaluation task

5) Is that talking good or not good?	Good	***Not good***	
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why? ***"Because like I like it"***	Speech	**Other**	***?***

No retest data was collected for participant 04-06.

Subject Number: 04-07
Age: 4;1
Date: 11/6/08
School: n/a
Class/Teacher: n/a

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

_+_ **25 dB** (under 5 years of age)
_____ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

10 Comprehension
10 Repetition
15 Identification
28 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	***Fluent***	Disfluent	?
3) What do you call this type of talking? ? (pointing to disfluent puppet) ***"girl talking"***	Stg	Speech	***Other***
4) And this type? ? (pointing to fluent puppet) ***"my too"***	Stg	Speech	***Other***

Evaluation task

5) Is that talking good or not good?	***Good***	Not good	
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why? ***"because that one's speaking nice"***	***Speech***	Other	?

No retest was completed participant 04-07.

Subject Number: 05-01
Age: 5;0
Date: 11/25/08
School: UTCDC
Class/Teacher: Leaping Frogs

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

___ **25 dB** (under 5 years of age)
_+_ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

_10_ Comprehension
_10_ Repetition
_15_ Identification
_29_ Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	Fluent	***Disfluent***	?
3) What do you call this type of talking? ? (pointing to disfluent puppet) ***"asking"***	Stg	Speech	***Other***
4) And this type? ***?*** (pointing to fluent puppet)	Stg	Speech	Other

Evaluation task

5) Is that talking good or not good?	***Good***	Not good	
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why? ***"because it's cute"***	Speech	***Other***	?

----------Retest Data Collection

(12/10/08)

Discrimination, Identification, Labeling tasks

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	***Fluent***	Disfluent	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ***?*** ***"my talking"***	Stg	Speech	Other

Evaluation tasks

5) Is that talking good or not good?	***Good***	Not good	?
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why? ***"because it's cute"***	Speech	***Other***	?

Subject Number: 05-02
Age: 5;1
Date: 11/25/08
School: UTCDC
Class/Teacher: Leaping Frogs

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

___ **25 dB** (under 5 years of age)
\+ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

10 Comprehension
8 Repetition
15 Identification
28 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	Yes	***No***	?
2) Which puppet talks like you?	Fluent	***Disfluent***	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? ***?*** (pointing to fluent puppet)	Stg	Speech	Other

Evaluation task

5) Is that talking good or not good?	***Good***	Not good	
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why? ***"it's a secret"***	Speech	***Other***	?

----------Retest Data Collection
(12/10/08)

Discrimination, Identification, Labeling tasks

1) Do the puppets talk the same way?	***Yes***	No	?
2) Which puppet talks like you?	***Fluent***	Disfluent	?
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet) ***"I can't remember"***	Stg	Speech	Other
4) And this type? ***?***	Stg	Speech	Other

Evaluation tasks

5) Is that talking good or not good?	***Good***	Not good	?
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why? ***"because it's funny"***	Speech	***Other***	?

Subject Number: 05-03
Age: 5;6
Date: 1/19/2009
School: Redland Oaks
Class/Teacher: n/a

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

___ **25 dB** (under 5 years of age)
\+ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

10 Comprehension
10 Repetition
15 Identification
27 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	**Yes**	*No*	?
2) Which puppet talks like you?	Fluent	***Disfluent***	?
3) What do you call this type of talking? *?* (pointing to disfluent puppet)	Stg	Speech ***"Puppet Talking"***	**Other**
4) And this type? *?* (pointing to disfluent puppet) ***"Person Talking"***	Stg	Speech	**Other**

Evaluation task

5) Is that talking good or not good?	*Good*	**Not good**	
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why? ***"Because I like it"***	Speech	***Other***	?

No retest was completed participant 05-03.

Subject Number: 07-01
Age: 7;2
Date: 12/23/2009
School: Home-Schooled
Class/Teacher: n/a

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

___ **25 dB** (under 5 years of age)
\+ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

10 Comprehension
10 Repetition
15 Identification
29 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	Yes	**No**	?
2) Which puppet talks like you?	**Fluent**	Disfluent	?
3) What do you call this type of talking? *?* (pointing to disfluent puppet) ***"Funny"***	Stg	**Speech**	Other
4) And this type? *?* (pointing to fluent puppet) ***"Normal"***	Stg	**Speech**	Other

Evaluation task

5) Is that talking good or not good?	*Good*	**Not good**	
6) Which one would you like to play with?	Fluent	***Disfluent***	?
7) Why? ***"Because I like it"***	Speech	***Other***	?

No retest was completed participant 07-01.

Subject Number: 07-02
Age: 7;2
Date: 1/19/2009
School: Redland Oaks
Class/Teacher: n/a

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

___ **25 dB** (under 5 years of age)
\+ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

10 Comprehension
10 Repetition
15 Identification
30 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way?	Yes	**No**	?
2) Which puppet talks like you?	**Fluent**	Disfluent	?
3) What do you call this type of talking?	Stg	**Speech**	Other

?

(pointing to disfluent puppet)

"Repeating the letters "b""

4) And this type?	Stg	**Speech**	Other

?

(pointing to fluent puppet)

"Repeating what the seal is saying"

Evaluation task

5) Is that talking good or not good?	*Good*	**Not good**	
6) Which one would you like to play with?	**Fluent**	*Disfluent*	?
7) Why?	**Speech**	*Other*	?

"Talks better than the other, it doesn't repeat the letters"

No retest was completed participant 07-02.

Subject Number: 07-03
Age: 7;3
Date: 1/19/2009
School: St. Marks
Class/Teacher: n/a

Data Collection

Hearing screening

Key: + = completed/passed; X = failed

___ **25 dB** (under 5 years of age)
\+ **20 dB** (5 years of age and up)

	1000 Hz	2000 Hz	4000 Hz
Right ear	+	+	+
Left ear	+	+	+

Fluharty Preschool Speech and Language Screening Test

10 Comprehension
10 Repetition
15 Identification
28 Articulation

Discrimination, Evaluation, and Labeling tasks

Key: Stg – stuttering; ? – I don't know/no response

1) Do the puppets talk the same way? **"Copied each other"**	**Yes**	N*o*	?
2) Which puppet talks like you?	Fluent	Disfluent	**?**
3) What do you call this type of talking? ***?*** (pointing to disfluent puppet)	Stg	Speech	Other
4) And this type? *?* (pointing to fluent puppet) ***"Copying"***	Stg	Speech	**Other**

Evaluation task

5) Is that talking good or not good?	*Good*	**Not good**	
6) Which one would you like to play with?	**Fluent**	*Disfluent*	?
7) Why? ***"I like stuff that's littler, it looks a little littler"***	Speech	***Other***	?

No retest was completed participant 07-03

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Vita

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